The Ryedale Historian

Number 27

2014–2015

Helmsley Archaeological and Historical Society

The *Ryedale Historian* is the biennial journal of the Helmsley Archaeological and Historical Society and has been publishing the results of archaeological investigations and historical research in the Ryedale area since 1965.

The Society was founded in 1950, originally as the Helmsley and Area Group of the Yorkshire Archaeological Society, for the purpose of archaeological and historical research on Ryedale and the dissemination of that research through lectures and discussion and, later, through publication in the *Ryedale Historian*.

The Society is a registered charity (No. 1089682) with a current membership of over one hundred. From September to April it sponsors a programme of illustrated lectures held at the North York Moors National Park Authority headquarters in Helmsley; during the summer months, it holds a series of visits to sites and locations of interest to its members.

For information on how to join the Society and its current programme of lectures and visits, please visit its website at www.helmsleyarchaeologicalandhistoricalsociety.org.uk.

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Ryedale Historian

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A periodical publication by the
Helmsley Archaeological and
Historical Society

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Editorial and Appreciations

Historic mills in Ryedale feature prominently in this issue of the *Ryedale Historian*. Elizabeth Sanderson and Geoffrey Snowdon present an interim report on the excavation of Yearsley Watermill, a project proudly supported by the Society both in terms of funding and volunteer excavation work by a number of its members. I look forward to reading their final report on the discovery and excavation of this medieval water mill and artefacts found within and around it. Graham Maynard, an engineer by profession, has spent almost seven years investigating the surviving eighteenth- and nineteenth-century machinery at the ancient Appleton Mill on the river Seven. His account, including his own original drawings, of how the original barn threshing machine might have worked is a substantial contribution to our knowledge of water mills in North Yorkshire before steam engines took over.

Margaret Allison continues her research on place-names in our area with an article on the ancient Celtic 'cat' names which have survived in the Ryedale landscape; she not only identifies likely locations but also speculates why they have survived through the centuries when others have not. Lorna Watts focuses on the work of Philip Rahtz and John Hurst at the deserted medieval village of Wharram Percy to illustrate not only how medieval archaeology came into being and developed in the post-war period but also how excavation techniques changed during this time. In a brief note, Watts reviews the evidence supporting the suggestion that the Roman Beadlam villa included a private Roman church and baptistery. In another short article she summarizes the watching brief that she recently completed during maintenance work at St Gregory's Minster, Kirkdale. This issue ends with two reviews of books recently published on the history and archaeology of our area.

The Helmsley Archaeological and Historical Society could not function without committee members who donate their time and skills in a variety of ways, often unnoticed by the wider membership: organising lectures and summer visits, collecting subscriptions and balancing the books, taking minutes of meetings, maintaining a library and editing and producing our journal every two years. What follows are appreciations of two long-serving members of the committee of the Society who made outstanding contributions to its current and future well-being: Anne Taylor, who died in 2013 shortly after Issue 26 was published, and Judith Prickett, who died in March of this year. We mourn them both.

Farrell Burnett
Honorary Editor

Anne Taylor
1932 – 2013

Anne was born in Scarborough, the daughter of its borough engineer, but was evacuated to Canada during the war to live in Toronto with a large Canadian family. Upon her return she attended Scarborough High School where she became Head Girl. She read languages at the University of London (but told friends years later that she regretted not having read history), beginning her course of study in 1951. In London after graduation she worked as a journalist at the BBC before her marriage to Desmond Taylor, who was Editor of News and Current Affairs at the BBC. She was widowed when she was only 45 and shortly thereafter began to write biographies. Her four well-received books were: *Laurence Oliphant* (1982), *Visions of Harmony: A Study of Nineteenth-Century Millenarianism* (1987), *Annie Besant* (1992), and *The People's Laird: A Life of Robert Bontine Cunninghame Graham* (2005), all but the last published by Oxford University Press.

Even while living and working in London Anne retained a strong emotional attachment to the North York Moors and visited the area frequently. After the death of her father in Scarborough, she moved from London to Appleton-le-Moors to live at Hall Cottage. She quickly became involved in the activities and affairs of the area, joining the Helmsley Archaeological and Historical Society in 1989.

She was elected to the committee in 1992 and remained on it until 2006. She became editor of the *Ryedale Historian* that year and was responsible for editing and producing six issues of the journal. Anne was a private and an exceptionally modest person. She was also very generous: few people in the Society know that she contributed personally to help pay for the publication of the journal's supplement on St Gregory's Minster, Kirkdale.

Anne's legacy is not confined to the *Ryedale Historian*. Among her many achievements, she was instrumental in the establishment of the nationally acclaimed North York Moors Chamber Music Festival, now in its seventh year, held in historic churches throughout the region.

Farrell Burnett with Jen Harris

Judith Prickett
1956 – 2015

Judith read medieval and modern history at the University of Birmingham from 1974 to 1977. In her second and third years, she took courses in medieval archaeology offered by Philip Rahtz and in connection with these courses in 1976 attended his two-week summer training excavation at the major Anglo-Saxon church at Deerhurst, Gloucestershire. In her third year she took a one-off special subject offered jointly by Philip Rahtz and Professor Rodney Hilton on 'the archaeology and history of West Midland towns in the Middle Ages'. At the same time, she also wrote a 12,000-word dissertation, choosing as her subject 'Life and Living in the Village of Thornton-le-Dale in the Period 1820–1880'. Although Judith and her family had been living for years in east Cheshire, where she attended Altrincham County Grammar School for Girls, she had kept up an active interest in Thornton-le-Dale where her mother's family had lived for centuries, more recently as successful shopkeepers, and where she is now buried.

After graduation in 1977 Judith read for the Postgraduate Certificate in Education at the College of Ripon and York St John (now York St John University). Subsequently she taught in Saltburn, Cleveland and in Sweden before taking a post at Lady Lumley's School in Pickering which she held until her retirement in 2014. As a result of her move to North Yorkshire, she was able to further her undergraduate research interest in Thornton-le-Dale and also to renew her acquaintance with Philip Rahtz (who, besides teaching her, had also been her personal tutor) through the Helmsley Historical and Archaeological Society.

Judith joined the Society during the 1996-97 season. Her commitment and enthusiasm were soon recognised and she was elected to the committee in April 1997. She remained a committee member for the next 18 years, holding a succession of different posts. She served as vice-chairman from 1998 to April 2000 when she became chairman, holding this position until 2005. From 2008 until April 2014 she was minutes secretary and from April 2014 until her death in March she was joint programme secretary, selecting subjects and arranging speakers for the winter lectures.

Steven and Philippa Bassett with Jen Harris

Yearsley Watermill: Interim Report

by Elizabeth M. Sanderson and Geoffrey Snowdon

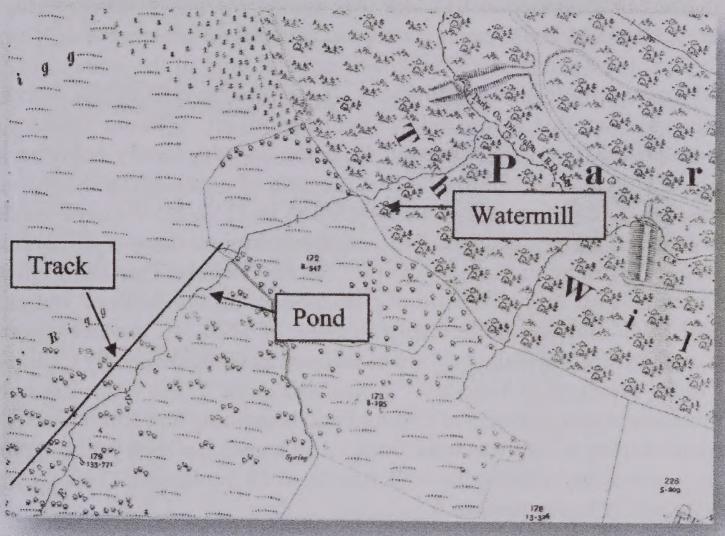
Introduction

In 2009, as part of the Lime and Ice Project (supported by the North York Moors National Park Authority, Howardian Hills AONB, English Heritage, the Forestry Commission and Natural England), a group of volunteers helped to set up the Yearsley Moor Archaeology Project (YMAP). Its objective was to check the condition of the monuments in the National Monuments Record in a designated area of Gilling Park and Yearsley Moor, to record any unknown features and wherever possible to expand on the history of the area. The final report was published in 2013.[1]

The North Yorkshire County Council Historic Environment Records (HER) included the foundations of a building of medieval or later date (SMR 11533) which the volunteers located and from December 2011 to January 2012 Luigi Signorelli directed an excavation of two areas of the building, but its purpose was not established.[2] During the excavation, however, it became clear that there were more foundations nearby at grid reference SE 5888 7603. The available maps, which probably dated to no earlier than 1800, were examined but none showed buildings in that area. It seemed possible that the building may have been a watermill primarily because of its location near a stream and when part of a millstone was found under the vegetation, it seemed a strong possibility. The HER also included a small dam and pond (SMR 11605) which was found, silted up, at SE5873 7595. The water from the pond would have fed the watermill. Alongside it an old track leads to Yearsley.

Map 1: Jefferys 'County of York Survey'd' 1775

The finding of a 'lost' watermill was considered to be significant, so in the winter of 2012–13 Mr Signorelli conducted the evaluation of two trenches at SE 5890 7603 which confirmed that the building had indeed been a watermill.[3] In addition, pottery analysis done by Jane Young indicated that the wide range of sherds spread over the site suggested that the watermill may have been levelled at the end of its life and filled with debris from the rubbish dump of a pottery.[4] The earliest sherd was dated to 1100–1230 and the latest were of early to mid-eighteenth century.



Map 2: Ordnance Survey 1911

The Yearsley Moor Archaeology Project finished in 2013 but it was thought that a great deal more could be discovered about the watermill complex. The Yearsley Mill Research Project (YMRP) was, therefore, formed that year from some of the YMAP members plus a large number of local people to continue the work of Mr Signorelli and to resolve more of the questions relating to the mill site in general. The project was seen as a unique opportunity to throw more light onto the workings of a medieval watermill, as many of the current examples of watermills have been extensively modified and updated since that period.

The major areas of interest centre around the date of construction of the watermill, the size and design of the mill wheel and whether it was undershot, overshot or breast-shot. These factors relate to the way the water drove the wheel and consequently how much power it might have generated. The place of the watermill within the local and wider environment is also of importance, as well as the people who ran it and the people whom it might have served. Relating the documentary material to the archaeological data is a further issue, as no map based evidence has yet been found to give the exact location of the watermill. The

timing and the means of the demise of the site are also of interest, as is the unusually large amount of pottery sherds found within the rubble used to cover the site after its destruction. The forgoing are all questions the excavators hope to address but it should be stressed that this is an interim report on what is only the first of a three-year programme.

Historic Background

The vill of Yearsley at the time of the Domesday Book in 1086 formed part of the manor of Coxwold which was valued at £12 and was among the possessions of Hugh, son of Baldric.[5] Later, Coxwold and Yearsley were held by the de Mowbrays of Thirsk and at some date before 1166, Thomas Colville was granted land in the manors of Coxwold, Yearsley and Oulston by Roger de Mowbray. Yearsley was held by the Colville family until 1405 when Thomas de Colville died without a male heir. William Yearsley (possibly half-brother to Thomas) was then granted Yearsley and the family held the land until William Wildon bought it in 1500. The first mention of a mill in Yearsley found so far occurs during the Wildon family's ownership when in 1559–60 William Wildon sold a parcel of ground in Yearsley containing ' … one watermilne there with the sute thereof and free course of water at all times forever … ' to Sir Nicholas Fairfax of Gilling.[6] The mill was also mentioned in the inquisition post-mortem on the death of William Fairfax dated 13 April 1598[7] and then in the Papist Register of 1720 ' … a water-cornmilne, and kiln, garden, orchard and curtilage, ... ' are mentioned as being owned by Charles Gregory Fairfax, the ninth Viscount, in Yearsley.[8] It was also in the 1720s when Viscount Fairfax started his great landscaping project of Gilling Park, something that continued for 50 years. During that landscaping a wall was built from ' … Thomas Bullmer wall over to the ould mill … '; the voucher for building the wall was dated 18 September 1748, so presumably the mill was no longer in use by then.[9]

The sale indenture of 1559–60 also mentions a previous tenant of the mill, one Richard Chapman.[10] Subsequent tenants were John Dinnison (c.1660)[11], possibly Thomas Dinnison (died 29 April 1668)[12] and George Yeoward (c.1684/85[13]–1719[14]). George Yeoward 'of Coxwold' (his Parish of residence if he was still living in Yearsley) was buried on 30 December 1724.[15] No record of later tenants of the mill has yet been found, so was George Yeoward the last miller? Certainly, Viscount Fairfax, who already had a watermill at Gilling[16], landscaped the area around that time to create 'The Wilderness', which still appears on Ordnance Survey maps today.

The Excavations

In order to carry out the investigations a series of targeted evaluation trenches were planned to cover the more prominent features exposed after the initial scrub clearance. The work was directed by Dr Jon Kenny, community archaeologist from York Archaeological Trust, and carried out by members of the YMRP community group, assisted at times by apprentices from the North York Moors National Park Authority.

The excavations were carried out in three-week periods during the spring and autumn months of 2014, with the intervening time used for site recording, cataloguing finds and documentary research. The material from each trench has been excavated contextually

and will be recorded according to standard archaeological practice, with a full report published at the end of the project.

For the purpose of this article the results from each trench will be discussed followed by a discussion of the work so far and an indication of the future programme.

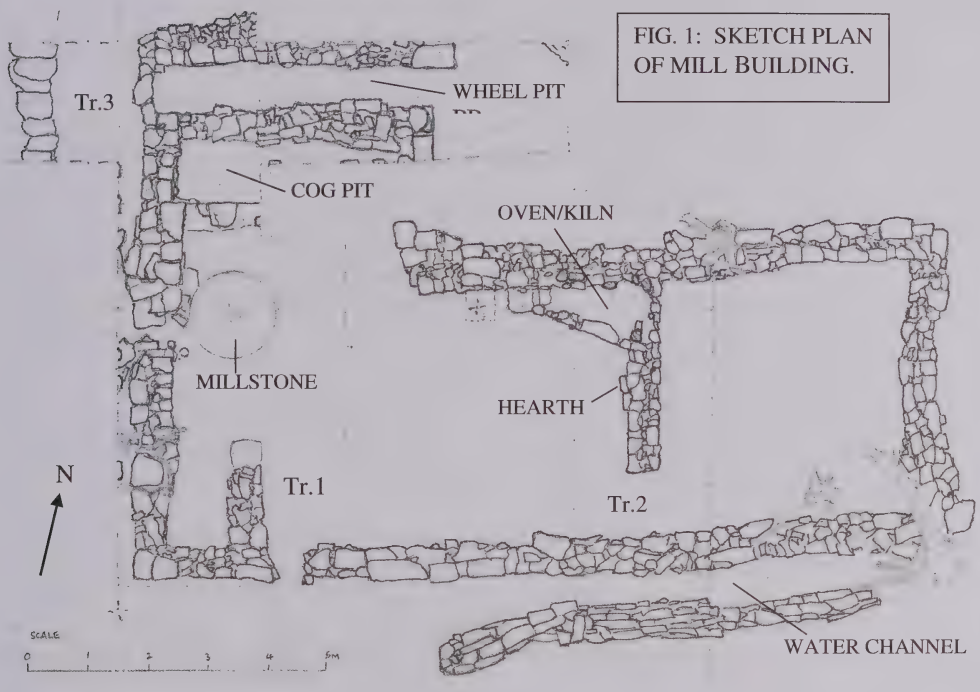


FIG. 1: SKETCH PLAN OF MILL BUILDING.

Trench 1

Excavations in Trench 1 (see Figure 1) were a continuation of the work started by Signiorelli in 2012.[17] The topsoil was the first layer to be removed; this was a brownish black, silty, sandy clay, containing a high proportion of leaf litter and other organic material, typical of the soil from a mixed woodland area in which the mill is situated. The topsoil covers the whole area under investigation to a depth of some 5–20cm. Although this is a relatively modern layer it still contains building rubble and other artifacts, mostly pottery sherds, possibly incorporated through bioturbation (root action and animal activity) from the layers below.

The removal of the topsoil and surface vegetation exposed the wall lines of the watermill. It appears to have been a very substantial, well-constructed building, fabricated from locally quarried sandy limestone blocks. These have been earth bonded using the soil to hand, which is characteristic of the building practices used in the area during the medieval period. The building measured 13.5m in length by 5.5m in width and the walls were some 0.65–.80m thick. The structure appears to have been demolished, with only the extant walls remaining to a height of 0.50–0.80m. Although there is a concentration of rubble

along the base of the walls, the majority of the stone appears to have been removed. There is no evidence of burning so it is possible, therefore, that the building was purposely dismantled and that any useful material was recycled elsewhere.

The mill building is set directly onto the natural bedrock in Trench 1. This solid base would provide considerable advantages when taking into account factors such as the vibration from the milling machinery and the waterlogged foundations that caused problems in other mills.[18]

The discovery of an intact millstone was, of course, a clear indication of the use of the building. The stone measures 1.49m in diameter and is 0.10m thick, with only slight damage around the perimeter. It had been laid into a recess cut into the bedrock, possibly to provide a solid working floor for operating the milling machinery. The millstone had been laid adjacent to a doorway into the mill, an area that may have become worn and uneven due to constant use. A further recess of similar size was also observed towards the interior of the mill but the stone from there appears to have been removed.

The complete stone is composed of millstone grit and was probably transported from a source in the Pennine area. Several other fragments of a similar material from broken millstones have been recovered from the rubble over the site and larger pieces have been laid to form a hearth, toward the centre of the building.

When in its working position, the intact stone would have been the top stone or runner. The specifically cut shape in the centre of the stone would have held the cast-iron saddle or rhynd which would have supported and rotated the runner over the stationary bed stone. The grooves or harps, which can still clearly be seen, were cut into both stones. They allowed the flour to escape to the perimeter of the millstones following the grinding process. The grain was fed from above, via a hopper and chute, directly into the centre of the runner.[19]

Further evidence for the presence of a watermill also emerged during the excavation of Trench 1, most notably the outline of the cog pit and the wheel pit where the mill wheel would have rotated (see Figure 1). The cog pit would have housed the pit wheel on the main axle from the mill wheel, a device used to transmit the power to drive the millstones. The cog pit had a U-shaped profile and had been cut some 0.45m into the bedrock. The fill of the pit was a dark brown, organic, silty material probably laid down in waterlogged conditions after the end of the mill's working days. Preservation of organic material was particularly good from this layer because of the anaerobic conditions and several pieces of wood and leather were retrieved from the bottom of the pit. One lath of wood had been carved with a line of decorative mouldings and may have come from the hurst, or wooden frame, built to support the millstones.[20] It may have taken several years for the organic deposit to gradually build up in the cog pit, which might also suggest that the mill went out of use well before the building was demolished and layers of rubble were subsequently laid over the site to level and landscape the area. Evidence for the presence of the mill would consequently have been obscured from this time onwards, which may explain the absence of the structure on subsequent maps or in documentary records.

The nature of the material used to level the site is also of interest. It is contained in several different contexts, perhaps representing separate loads tipped on the site. The matrix is of a similar structure throughout: mostly sandy, silty clays, dark brownish to yellow in colour

with various amounts of stone rubble mixed within. This suggests that the material may have been brought in by a barrow or cart load from a nearby source, possibly a rubble tip or midden. The individual loads would then have been spread horizontally to fill and level gradually the site.

What is perhaps more surprising and significant is the amount of pottery sherds found within these deposits, some 850 (including the topsoil) in 2012 and 581 and 1117 in 2014. The vast majority of these (approximately 80 percent) have been identified as locally produced Ryedale Ware, dating from between 1550 and 1750; further analysis of the pottery also showed that much of it appeared to be kiln waste or pieces of discarded vessels unsuitable for use.[21] The fact that so many pieces appeared within the rubble fills would further suggest that the pottery was being produced nearby as it is unlikely that that this type of material would have been transported any great distance simply to level the area. The presence of a possible kiln is yet to be established.

Several possible post holes were also identified, cut into the bedrock of the mill floor; a line of these may have supported a partition wall, dividing the milling machinery from the living area. Another may have held a door post but the most spectacular was uncovered towards the centre of the exposed floor area in Trench 1. This feature measured 0.58m in length, 0.56m in width and was 0.28m deep. It could have held a very substantial post or pillar but its true function is as yet unclear. Possibilities include a roof support timber or a base for auxiliary milling equipment such as an oat roller, a possible large fragment of which has been recovered from the rubble.

Trench 2

The results from the excavation of Trench 2 also provided some unexpected discoveries. A feature, thought to be a hearth, was uncovered on the western side of the central wall. Two heat-affected stones set against the wall appeared to provide a fireback; and a further series of flat stones, some being reused pieces of millstone with the grooves still visible, formed the fire base to support an open hearth or metal grate. Two post holes were also uncovered at either site of the hearth, the posts from which may have supported a hood or a spit and other bars and rails associated with cooking on an open fire.

Adjacent to the hearth was a second feature which had been built into the corner of the room; it had been heavily truncated during the demolition process but a semi-circle of burnt stones around a flat base suggests that the feature may have been an oven or drying kiln.

A doorway was also uncovered linking the two rooms within the building; as yet the function of the easternmost room is uncertain but the upper fills are similar to those found on the rest of the site. Removal of the fill from the eastern side of the central wall exposed a compact layer of creamy yellow sandy clay which appeared to have been laid to form a level floor surface. The layer extended under the central wall and under the external wall and met with the bed rock surface towards the south of the building. This feature may have been a rammed-earth or durable floor surface, suitable for an internal living or working area. Subsequent removal of the roof during the demolition process had allowed the entry of water which softened and degraded the floor. Ingress of groundwater also eroded the bedrock surface, although initially both would have provided an adequate floor, especially if covered with rush matting, which was possibly the case in the medieval and post medieval periods.

Trench 2 was extended south over what was initially thought to be a pathway between two buildings. The removal of the two fills, however, suggested a different purpose for this feature. Once the bed rock had been exposed it was seen to have been eroded by running water and it also sloped from west to east. Further observations suggested that this was, in fact, a water channel that had originally been used to take the drainage water from the slope to the south and west of the building. The curved nature of the outer wall of the channel would also indicate that this had been its purpose, although it may also have collected rain water from the roof. It appears that the water in the channel was subsequently diverted through the mill building, via the hole punched through the external wall, when the mill fell out of use.

The substantial wall, to the south of the mill building was also exposed in Trench 2. It is of the same proportions and construction method as the walls of the mill building and had been demolished to the same level. The fill was similar to that covering the rest of the site and contained the same pottery types, although what was thought to be a pistol ball was also found. The same fill extended to the bedrock floor. An unusual aspect of the wall was that it appeared to have collapsed against the pull of gravity (that is, uphill), although this may just reflect the way it was demolished. The function of the feature or building that the wall forms a part of is, as yet, unclear. Further excavations will be necessary to establish its use.

Figure 2: Exposed flagstone floor.

In order to obtain a clearer indication of the purpose of the space in the interior of the mill building (between Trenches 1 and 2), it was decided to remove the remaining fills to floor level. Once the fills had been removed, an unexpectedly elaborate flagstone floor was exposed. The flagstones were of a sandy limestone material, similar to the bedrock, and had probably been quarried locally. They formed an irregular pattern, some possibly having cracked after being laid, and provided a level, if slightly uneven, floor surface. The

stones were laid over a layer of creamy yellow sandy clay, similar to that found under the central wall and forming the floor of the eastern side of the same building. The flagstones made a level connection with the stones of the hearth and oven/kiln area, the full extent of which was exposed after removal of the fills. The remains of a possible cooking pot and several pieces of lime mortar were found in nearby fills which may have been associated with the possible kiln or oven found in the northeast corner of the room.

Despite the attempts made to level the floor, there was still a considerable slope running down to the millstone and putative mill working area. The flagstones also stop at a line of post holes that may have formed the division between the mill and the more domestic or living area of the building.

Trench 3

During the 2014 autumn excavations, a third evaluation trench was started at right angles to Trench 1, over what was believed to be the position of the waterwheel pit and the start of the tail race, where the water exited the pit. This trench was also extended to the west to investigate the stone embankment and the means by which water entered the wheel pit in order to drive the mill wheel.

The layers from the upper contexts were first removed and proved to be an extension of those found in Trench 1, these being fills dumped and spread to cover the mill site. The removal of these layers, however, exposed the extent of the walls built to contain the mill wheel and to separate the wheel from the adjacent cog pit. A return wall was also observed on the cog pit side that appeared to rejoin the mill building. The dimensions and the position of the exposed wall remains confirmed, therefore, the presence of the mill wheel pit and adjacent cog pit. The wheel pit measured some 4.90m in length by 0.70m in width, sufficient to house a mill wheel of at least 4.00m in diameter. The fill of the wheel pit and that of the tail race to the east were of a similar dark brownish grey, peaty silt that contained a great deal of well-preserved organic finds, as well as the pottery, glass, metal and other finds more common on the rest of the site. The preservation of the sawn timber, leather and possibly thatch or bracken for animal bedding was particularly good. The timber ranged from small pieces of decorated household furniture to possible roof trusses; a large amount of scrap wood was also present containing worm and beetle holes. A large piece of jointed, curved timber was also found in the cog pit; an estimation of the diameter of the complete structure would have been some 4.00m, sufficient to fit into the wheel pit with paddles extending from its outer edge. It was, therefore, considered to be part of the mill wheel, although further investigative analysis would be necessary to confirm its use and that of the other timber found in this area.

Figure 3: Curved timber piece found in cog pit.

Excavations were halted at this level and the timbers were left in situ. The trench was then allowed to fill with water as an effective means of preserving the wood until it could be fully recorded and decisions made on a future conservation policy.

The extension of Trench 3 into the embankment to the west produced a thin topsoil layer, under which was a layer of fine light greyish brown, clayey sandy silt. This layer covered the underlying stone embankment, it varied in depth from 0.10m to 0.50m and masked the profile of the bank. This area is still being excavated but the bank appears to have been deliberately constructed here, possibly to prevent access to the mill site after its demolition, or possibly to reestablish the Gilling park boundary which adjoins the existing boundary in this area.

A linear feature consisting of a line of large irregular stones was observed running in a north–south direction across the slope; this possibly served as a revetment to support the bank and to stop slippage down the slope.

The remainder of the embankment was made up of stone rubble of various sizes in a brownish grey soil matrix, possibly using the material from the demolition of the mill buildings. The fact that the embankment effectively blocks the door/entrance to the mill and possibly fills the leat and that it contains some of the later pottery finds from the site would suggest that it is a structure later than the mill but its true purpose is as yet unclear.

The Finds

In addition to the pottery, leather, wood and other finds described above, glass, metal, bone, stone and teeth were recovered. At this stage, it is not possible to state categorically

which finds originated at the watermill and which were introduced in the rubble when the site was levelled. It means, therefore, that any finds which are dateable, such as the pottery, may only date the material in the rubbish heap rather than the watermill itself. One exception to this may be the pottery from the floor of the eastern side of the building which may date from 1150 to 1450, but it is hoped that further excavations will provide material which will establish when the watermill was in use.

Of the material spread across the site, 74 small pieces of fine flat glass were recovered, which, although the number seems high, may only be equivalent to one window. Pieces of lead were found, some of which may have been the cames from leaded window(s). Bottle glass was also found, one piece of which had the initials EM stamped on it. A very fine bottle neck was found in the cog pit.

Of the metalwork, there were two spoons, one of which probably dated between 1660 and 1720. A large block of metal may have been a lock which could have been associated with one of the keys found. A knife, the head of a hammer, a chisel, possibly a pick for dressing the millstones, various hinges and even a child's toy in the form of a whirligig were identified along with nails and less recognisable pieces of metal.

Six pieces of millstone were found in addition to those in the hearth. A large circular piece of limestone, purpose so far unknown, and a circular stone with a hole drilled through possibly for crushing oats were found in the fill. Additional material relating to the operation of the watermill included three broken cobblestone bearings (to support a shaft).

In addition to the Ryedale Ware described above, local pottery from Brandsby and York and from further afield such as Staffordshire, was found. Some had undoubtedly been used domestically.

Discussion

The early results from the excavations on the Yearsley mill site have yielded some fascinating and unexpected discoveries and developments. These include the vast range and quantity of finds, particularly the pottery, and the excellent level of preservation, not only of the organic remains within the waterlogged layers but also of the extant building and its related features.

Much of the focus of the work so far has been on the later stages of the life of the mill as the most recent contexts have been the first to be removed. Dates for the pottery from this terminal period show that the site seems to have been taken out of use around the early- to mid-eighteenth century and there is some documentary evidence to support this theory.[22] The mill itself appears to have finished working before this time, however, as evidenced by the silting up of the cog pit and wheel pit areas. The subsequent burial of the whole site under several layers of soil and rubble, possibly as part of the landscaping work on Gilling Park, has not only hidden it from view but has greatly assisted the preservation process.

Very little has been found so far to suggest a construction date for the mill. A single sherd of Beverly Ware and several more of Brandsby Ware types dating from the twelfth to the fourteenth century appear to be the earliest from the site to date but no documentary evidence relating to this period has so far been uncovered.[23] It is hoped that the ongoing

excavations will throw more light onto this aspect of the mill as the lower layers are uncovered.

On a wider scale the project has provided members of the local community with the opportunity to become involved with the discovery of their local history and heritage. They have also developed new skills in archaeological excavation and recording and have a much wider knowledge of milling technology and the importance of the watermill in medieval and post medieval society.

The success of the project to date has encouraged the group to plan for the continued excavation of the trenches already opened and to expand the investigations to examine further related structures to the east of the mill site. This will be the focus in the forthcoming digging season.

Acknowledgements

We would like to thank the volunteers who have excavated the watermill and also the apprentices and Steve Young of the North York Moors National Park Authority who have given us invaluable assistance. Help and advice given to us by John K. Harrison, Peter Morgan, Dr Jon Kenny, John Hudson and Christine Clayborough are very much appreciated.

Excavations were made possible with financial help from the Helmsley Archaeological and Historical Society and the kind permission of the Forestry Commission who lease the land from Ampleforth College.

Notes

[1] *Yearsley Moor Archaeological Project 2009–2013: Over 4000 years of history* (2013). www.northyorkmoors.org.uk/looking-after/our-projects/lime-and-ice/exploring-yearsley-moor/YMAP-Final-Report-2013.pdf
[2] L. Signorelli (2012), *Report of an Archaeological Investigation and Recording at Yearsley Moor Wood, Yearsley, North Yorkshire*. www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=MNY11533&resourceID=1009.
[3] L. Signorelli (2013), *Report of an Archaeological Evaluation at Yearsley Moor Wood, Yearsley, North Yorkshire*, p. 8. Accessible via website cited in Signorelli (2012) above.
[4] J. Young (2013), *A Report on the Pottery from Yearsley Moor, Yearsley, North Yorkshire*, p. 12.
[5] W. Page (Ed.) (1923), *The Victoria History of the County of York, North Riding*, vol 2. London: Constable, pp. 8-24.
[6] North Yorkshire County Record Office, Belasyse family records, ZDV I 5, MIC 1352, frame 867.
[7] North Yorkshire County Record Office, ZQG(F) II.14.
[8] North Yorkshire County Record Office, Northallerton Quarter Sessions, 1720 p. 82.
[9] North Yorkshire County Record Office, Fairfax Vouchers 1733-1752, ZDV(F) MIC 1131.
[10] NYCRO, Belasyse family records, ZDV I 5, MIC 1352, frame 867.
[11] *Yorkshire Parish Register Society*, Coxwold 1, p. 121.
[12] Borthwick Institute P.R. Cox 3 Coxwold 1666-1702/03 and microfilm 669.
[13] ibid.
[14] North Yorkshire County Record Office, ZQG(F) V Estate 3.4.1 MIC 2814 frame 1063.
[15] North Yorkshire County Record Office, Gilling Parish Registers.
[16] North Yorkshire County Record Office, Hungate & Fairfax family papers, ZDV(F) MIC 1128 frames 3504 and 3517.
[17] Signorelli (2012), op. cit.

[18] J. K. Harrison (2008), *Eight Centuries of Milling in North East Yorkshire.* Helmsley: North York Moors National Park Authority, pp. 35-37.
[19] J. Brown (2011), *Water Power and Watermills*. Berkshire, England: The Crowood Press Ltd, pp. 25-31.
[20] S. Yorke (2006), *Windmills and Waterwheels Explained*. Wiltshire, England: Countryside Books, pp. 72-87.
[21] Young, op. cit., p. 12.
[22] NYCRO, Fairfax Vouchers 1733-1752, ZDV(F), MIC 1131.
[23] Young, op. cit.

Investigations into the History and Development of Appleton Mill, Appleton-le-Moors, North Yorkshire

by Graham J. Maynard

Introduction

Appleton Mill is an ancient water mill situated in a bend in the river Seven about half a mile due east of Appleton-le-Moors. The mill is of particular interest for two reasons: first because of its long life as a working mill and second because it was developed to power several different types of farm machinery, including a barn threshing machine. This wide range of functions makes it different from other mills and gives it historical interest.

I became involved with the mill in 2008, when I met the present owner, who kindly showed me some of the buildings and most of the remaining pieces of equipment.[1] I was also shown the remains of the barn threshing machine situated inside the barn adjoining the mill. This machine had some unusual features which could not easily be explained and which were of particular interest to me. Since then I have visited the mill on several occasions to investigate the machinery.

Although the long history of the mill is discussed in both Margaret Allison's *History of Appleton-le-Moors*[2] and John K. Harrison's *Eight Centuries of Milling in North East Yorkshire*[3], neither contained enough information for me to be able to understand how the mill machinery would have worked before it was removed. To have worked successfully, the gearing of the threshing machine would have needed to be compatible with the mill machinery itself. I later realised that if I had an understanding of the barn threshing machine I would be better able to understand the mill machinery. I also realised that this machine was very old and incomplete and that finding information about it would be difficult.

Unfortunately, even with the help of the Mills Trust, I discovered that there were no written accounts available relating specifically to the mechanical details of barn threshing machines. I decided that the only solution was to discover the information for myself by making a study of a suitable and complete machine. Fortunately there is an example of a horse-driven barn threshing machine in the Ryedale Folk Museum. Detailed studies of this machine in 2012 and 2013 provided me with significant insights into the workings of that at Appleton Mill. In particular I was able to discover the probable speed of rotation of the driveshaft from the mill and thus work out the ratios of the gears inside the mill.

Finally, I was able to compare Appleton Mill with the well-documented Ingleby Greenhow Mill[4], concluding that the machinery of the two mills was probably very similar. In what follows I describe how Appleton Mill was developed during the eighteenth and nineteenth centuries and how its machinery was constructed and operated before it was dismantled after the Second World War.

The History and Development of Appleton Mill

Historical records indicate the presence of a mill at this site since 1236 and that no improvements to the mill were recorded prior to 1775.[5] The owner recorded in 1775 was John Thompson, who had improved the mill by 1780. A later record, dated 1814, tells of repairs and of probable improvements.[6]

The First Phase of Development (1775–1780)
During the eighteenth century there was a growing demand for oatmeal and finely ground white flour.[7] At that same time new technology was being developed for the milling of fine flour; this included new types of millstones, together with improved gearing.[8]

During the 1780s John Thompson bought farmland in the area surrounding the mill, and this must have provided new opportunities both for growing more cereal crops and to expand his milling business.[9] To take full advantage of these new business opportunities John Thompson would have needed to increase the output from the mill. He must have known that he would have to install new machinery in the mill and that this work would require significant alterations to the mill building.

It is likely that the mill machinery existing at that time consisted of a waterwheel driving a single pair of traditional large-diameter grit stones. To increase output, a larger waterwheel, which would have provided more power to drive a pair of lying shafts, would have been installed; these in turn could have been used to drive several pairs of stones. The lying shafts would have been positioned horizontally over a long pit, which stretched from one side wall to the other, behind the wall next to the waterwheel. The shafts would have been supported and held in position within a substantial wooden frame called a hurst and would have had additional gearing used to increase the speed of rotation of the millstones. This was essential for the new smaller-diameter German stones which could be used for the production of fine white flour. A barley mill was probably installed at this time for the production of pearl barley; the original stone is still on site.

Photograph 1: The grit stone and one of the German stones have been used to make a table in the yard at Appleton Mill.

Evidence to support this development can be found by examination of the remaining artefacts at the mill. There is a pair of German blue stones and a single grit stone. Both

types of stone have a diameter of about 46in which is smaller than the size of traditional stones. This means that both the German and the grit stones were now capable of revolving at faster speeds than could the traditional large-diameter stones, and both types may have been employed at the time of the first development. It is also possible that an original pair of traditional large-diameter grey stones could have been retained and used. There is no evidence to confirm this possibility but, if this were the case, then these stones could have been disposed of later, at the time of the second phase of development.

Evidence of rebuilding is clearly visible in the walls of the mill. Large stone blocks can be seen in the wall behind the waterwheel, showing that the wall has been rebuilt and that the position of the wheel has probably been changed. It seems likely that these stone blocks were used at the time of the first development because the ends of some of the blocks can be seen from outside, at the corner of this wall and of the front wall.

Photograph 2: Stone blocks visible behind the wooden waterwheel.

John Thompson also built the fine mill house adjoining the mill,[10] a common practice at this time.[11] In some mills a door above the first floor in the mill provided access through the common gable wall to the first floor of the house, and one of the bedrooms of the house was used as additional space for storing grain. A door of this type was discovered when some recent alterations were being made at the mill.[12] This discovery strongly suggests that John Thompson had access to the house from the mill by way of a door at first-floor level. The extent of the floor inside the mill, prior to the building of the house, is unknown. If there had been an existing floor in the mill it may have been extended and possibly raised to make it suitable for access to a new door in the gable wall.

John Harrison has described the features of small eighteenth-century water mills.[13] The following features apply to Appleton Mill:

- A wide ground plan: the mill is wider than the house.
- A wide doorway for access (this has since been altered and windows added).

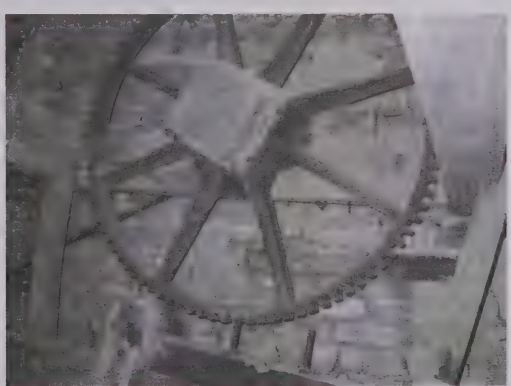
- Windows lighting the ground floor and the hurst platform: wooden lintels fixed in the wall above the first floor on the inside of the wall next to the waterwheel could be evidence of an old window, now blocked up, which provided light to the platform.

- Attached two-storey mill house, with access to the house from the mill through a door above first-floor level (sealed off at a later date). There is also a door at the front of the house.

Second phase of development (1810–1814)

The machinery installed by John Thompson was not capable of driving a barn threshing machine, but the technology of the upright shaft became more widely used after 1784.[14] Thus, there must have been a second phase of development at the mill. The records show that the mill was repaired shortly before 1814,[15] and it is most likely that an upright shaft was installed at this time. The machinery which had been installed by John Thompson would have been removed, and most of the long pit in the floor would have been filled in, leaving a much smaller pit, which accommodated the new pit wheel. The barley mill was probably made redundant. The barley stone was recorded on site in 1837[16] and is still on site to this day.

There is no evidence to suggest that a new waterwheel was installed at this time. An upright shaft would have been installed to support the wallower, the spur wheel and the crown wheel. The spur wheel probably drove two sets of stones on the first floor, the German stones and the grit stones. The crown wheel was used to drive at least two wooden layshafts, one of which passed over the leat to the barn behind the mill, where it drove the barn threshing machine. It would have been essential to ensure that the threshing machine and the upright shaft were compatible, suggesting that the threshing machine and the upright shaft were installed at the same time.



Photograph 3: The cut end of the wooden layshaft which still supports a large gear wheel.

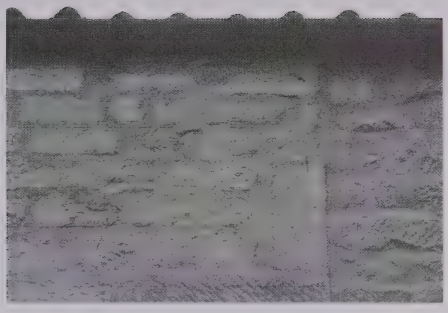
There is evidence that there was a second layshaft because part of one of the beams in the roof of the mill has been cut away, probably to allow clearance for a pulley on another layshaft situated below. This shaft could have been used to power the sack hoist or other piece of farm machinery.

Photograph 4: Cut-away beam in the roof of the mill.

A remnant, octagonal in section, of one of the layshafts has been re-used as a vertical support in a downstairs door frame.

Photograph 5: Remnant of layshaft re-used as a vertical support.

Improvements to the buildings would have been required in order to accommodate the new machinery. Alterations of this type have been documented.[17] The space above the first floor, previously used for the storage of sacks of grain, was enlarged. This was achieved by removing the traditional thatched roof and then raising the height of the walls by adding three courses of masonry.

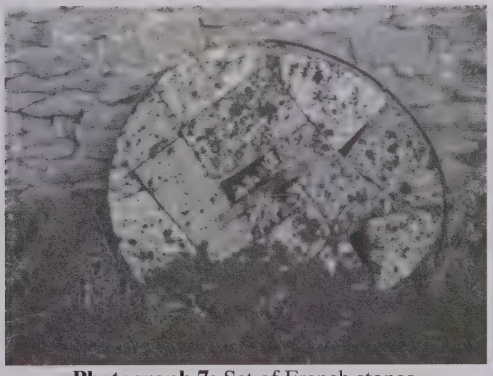


Photograph 6: Three courses of masonry at the top of the wall and below the tiled roof and the ends of the dressed stone blocks from the adjoining wall, situated behind the waterwheel. The masonry to the right of the blocks has been built over the leat.

The roof was probably renewed using locally made tiles. All these changes flattened the angle of the roof and helped to increase the height of the storage area near the eaves. The extra height also made more room at the top of the upright shaft for the installation of the crown wheel and the layshafts.

The entrance was probably enlarged to double-door width, so that a horse-drawn cart could be unloaded inside the mill.[18] This doorway has since been bricked up to form the external wall of the kitchen.

After the barn threshing machine had been installed, the mill was connected to the barn on the other side of the leat. A wooden bridge was built between the two buildings, and wooden doors were installed in the walls, giving access to the bridge from each side. To keep the weather out of the area between the two buildings, the roof was extended over the leat. A stone wall was erected at each end of the building to enclose the area completely. It was then possible to pass under cover from one building to the other on the same level. There was one last improvement to the mill, the introduction of French



Photograph 7: Set of French stones.

burr stones. The date of installation has not been recorded, but it was most likely to have been between 1840 and 1880.[19] The set of French stones is kept nearby at Hamley by the

present owners. They would have been driven by a spur wheel, which confirms the presence of an upright shaft. They could have been used to replace the grit stones, thus increasing the production of white flour.

Machinery Remaining at Appleton Mill

Although most of the machinery has been removed, the following pieces still remain:

- A wooden waterwheel, 14ft in diameter, fixed on a wooden shaft. There are 36 paddles, each 45in wide and 13in deep; the wheel is divided into six sections by the wooden spokes. It is supported by a wide wooden shaft, which has a diameter of 18in.

- The 10in-square stub of the wooden layshaft used to drive the threshing machine.

- A 77in-long section of one of the layshafts, octagonal in section, and 9in from side to side; one end is 9.5in square and would probably have been used to hold a gear or a pulley. It could be a second shaft used to drive the sack hoist and is now used as part of a door frame.

- Two German basalt stones and two French burr stones.

- One grit stone made of millstone grit.

- One barley stone.

- The drum of the sack hoist.

These remaining artefacts show that inside the mill there was a wooden upright shaft, which drove at least two pairs of stones, the sack hoist and the barn threshing machine. However, there is not sufficient physical evidence to understand the structure and gearing of the machinery.

To understand the mill machinery in detail it was necessary first to comprehend how the barn threshing machine, most of which has been dismantled, had worked. Fortunately I was able to study the barn threshing machine at Ryedale Folk Museum. I used this machine as a model to compare with that at Appleton Mill – although it should be noted that the machine at the Museum was horse driven while that at Appleton Mill was water driven.

The machines are not complete. There are missing gears, and it has been necessary to measure the radius of each missing gear in order to work out the number of teeth and the gearing ratios. Knowing the direction of rotation of the axles has helped in working out the configuration of the pulleys and belts, as well as giving insights into the arrangement of some missing axles and gears. Details about gearing appear in Appendix 1.

How a Barn Threshing Machine Works

Externally the machine looks like a large rectangular box, made of wooden panels, fixed upon a robust wooden frame. The whole machine is fixed at first-floor level to allow the grain and the straw to fall to the ground floor below. Inside there are two compartments: the first is for beating the ripened grain from the ears of corn and the second for removing the straw and collecting the grain.

The operator feeds the bundles of corn manually into the machine. The bundles pass between two revolving rollers, the top one smooth and the bottom fluted. These infeed rollers grip the bundles of corn and draw them into the machine. The stalks of corn are held in a horizontal position, while the rotating thrashing drum beats the ripened grain out of the ears. The grain and the straw drop on to a curved sheet of metal held below the thrashing drum. As the volume of grain increases, the beating bars of the thrashing drum propel the grain and the straw into the second part of the machine.

The floor of the second compartment is made of a sheet of coarse wire mesh, which is curved and is fixed in place below a set of slowly turning rakes. The grain falls through the mesh and into a wooden hopper, at the bottom of which are the grain cleaners. The cleaners remove the loose chaff, so that the cleaned grain can be collected in sacks. As the straw collects above the wire mesh, it is removed by the rotating rakes, which eject the straw at the other end of the machine, where it falls down a sloping wooden lattice to the ground floor below. A diagram based on the measurements of the machine at Ryedale Folk Museum is shown below.

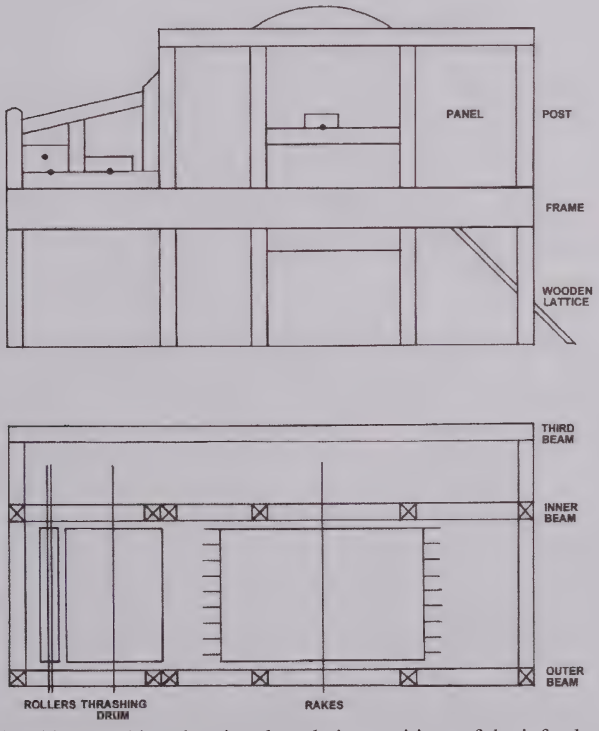


Figure 1: Typical barn threshing machine showing the relative positions of the infeed rollers, the thrashing drum and the rakes.

The Horse-Driven Barn Threshing Machine at Ryedale Folk Museum

A horse-driven barn threshing machine is housed inside a large stone building at the Museum. Outside this building is a roofed hexagonal-shaped building with open sides, where two horses were used to turn a large horizontal wheel. On the wheel a large-diameter iron gear ring is fixed, which turned an iron gear wheel attached to a horizontal wooden shaft, octagonal in section. This shaft was used to turn a train of iron gears situated behind the threshing machine inside the main building. The threshing machine is supported at first-floor level by sturdy upright wooden posts. By studying the arrangement of the gears, pulleys and belts and by working out the gearing ratios it has been possible to establish the speed and direction of rotation of the axles. It has also been possible to determine the direction of rotation of the horse wheel, the rakes, the thrashing drum and the infeed rollers.

The speed of the machine would have been controlled by the pace at which the horses turned the wheel. I have chosen a speed of 3mph, bearing in mind that the horses would

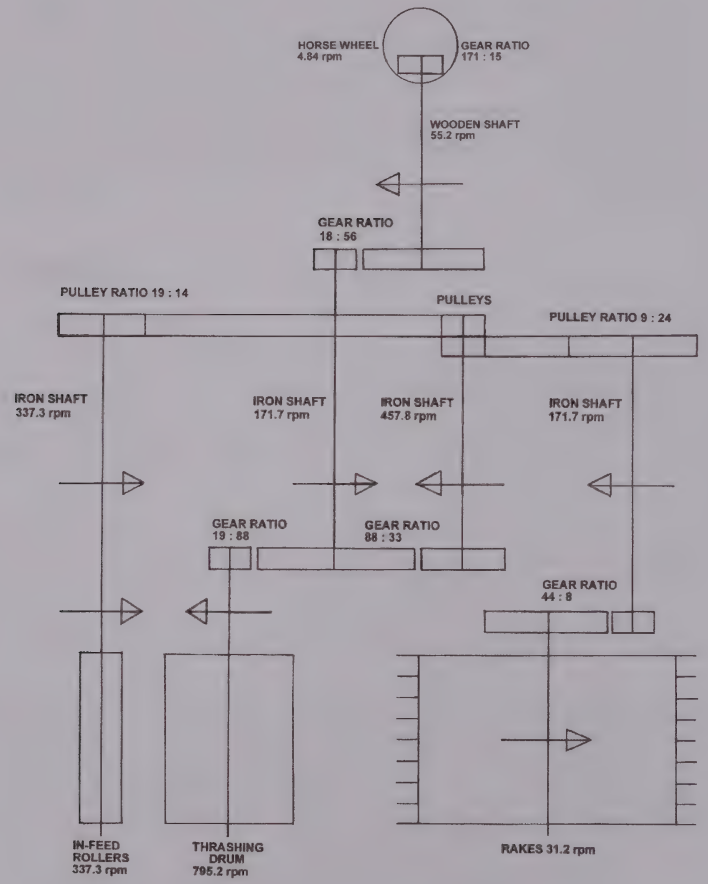


Figure 2: Gearing of the barn threshing machine at Ryedale Folk Museum.

have been walking in a confined space. This speed equates to 4.4ft per second, allowing the horses to make 4.84 revolutions per minute (rpm). The speed of rotation is geared up so that the rakes turn at 31rpm, the thrashing drum at 795rpm and the infeed rollers at 337rpm. A diagram of the mechanism is shown above.

The Barn Threshing Machine at Appleton Mill

The machine is situated on the first floor of the barn on the opposite side of the leat to the mill and was probably dismantled at the same time as the mill machinery. The front part of the outer beam of the wooden frame, which supported the thrashing drum and the infeed rollers, has been sawn off. The rollers, the thrashing drum and the rakes have been removed and lost. The external wooden panels, once fixed above the wooden frame, have been removed. The mortise joints used to support the upright wooden posts holding the panels can still be seen in the top surface of the frame. There is some panelling in the side of the machine, between the frame and the floor, but it is unclear whether this is original. Some of the panels from above the frame might have been re-used to form part of the side. Boards have been fixed across the top of the frame, forming a flat surface, which is now used for storage.

The frame is made from two horizontal wooden beams, each 11.0in x 3.5in in section. From end to end the frame is 171.5in long, and the width between the side beams is 37.5in. Halfway along the inside face of the inner beam can be found some marks which are the fixing points for the curved wire mesh. Originally there would have been wooden cross members fixed into the side beams to give rigidity to the frame. Only one of them remains, 111.5in from the front of the machine and 4in thick. Behind this the remaining area inside the frame is 56in long and reaches to the side wall of the building to enclose the space through which the straw would have fallen to the floor. This cross member reaches across the machine and passes through the wall behind it next to the leat. In addition, there are two other cross members, mortised into the back of the inner beam which pass through the wall behind. One is at the front of the inner beam, and the second is 35.5in from the front. They are fixed into the wall and form the main structural support for the frame, although they are not connected to the outer beam of the frame. The outer beam is supported by upright posts which rise from the floor below.

On the other side of the wall the ends of the cross members are mortised into a third horizontal beam, which reaches the full length of the three cross members. An additional 3in-thick beam has been fixed next to the wall and between the first two cross members only. This frame helps to support another frame above it by means of two upright posts. Above head height are two bulky wooden beams, each measuring 9.0in x 5.0in in section, which cross over the leat. They are fixed at one end into the wall of the mill and at the other end into the wall of the barn. A cross-beam is used to brace the two beams near the barn wall, forming a frame which is connected to the frame below by the two posts. The cross-beam is used as a bearing surface for the end of the layshaft from the mill. All that remains of the layshaft is the sawn-off stub situated next to the barn wall, on which is mounted a large iron gear wheel. There is no evidence of any gearing similar to that found on the machine at Ryedale Folk Museum.

There is little physical evidence to indicate how the machine would have worked. However, drawings of other types of threshing machine, some of which were driven by

bevel gears and shafts, pointed to the strong possibility that the drive mechanism of the Appleton machine was in two parts. The large gearwheel on the wooden layshaft must have been used to drive a smaller gearwheel. The end of the axle on which the small gearwheel was fixed was held in place by a bearing block fixed to a long wooden lever, situated below the large gearwheel. The small gearwheel could be engaged with or disengaged from the large gearwheel by raising or lowering the long wooden lever. This gearing mechanism was used to drive the thrashing drum and the infeed rollers.

Behind the large gearwheel on the end of the wooden layshaft is a pair of bevel gears, which are connected to a long iron shaft at right angles to the layshaft. At the other end of this shaft is another pair of bevel gears; these turn a short iron shaft, which passes through the wall of the barn to the back of the threshing machine. The end of this shaft would have been held in place by a bearing block fixed to the top of the inner beam of the frame. A small gearwheel is attached to this shaft and would have meshed with a larger gearwheel having twice as many teeth and being fixed on to the axle turning the rakes. The axle of the rakes would have been fixed in a bearing block held in place above that of the axle of the smaller gearwheel. This was necessary to allow for the sweep of the rakes, which had a radius of 26in. Also attached to the short iron shaft is a large wooden pulley with a 15in-diameter. This pulley would have been connected by a belt to a smaller pulley below, used to drive the grain cleaners.

The front part of the outer beam of the frame has been cut off, and the mechanism used to drive the thrashing drum and infeed rollers is lost. The inner beam close to the wall is intact, and it has been possible to postulate how the gearing would have worked. Some notches have been cut into the top surface of the inner beam, indicating the position of two bearing blocks. There are also the securing bolts which once held them in position. One block held the other end of the shaft driven by the large gearwheel fixed to the layshaft, and the second block held one end of the axle of the thrashing drum. There would have been a pair of meshing gearwheels, one on each axle, used to drive the thrashing drum. The lack of any other evidence, together with knowledge of the rotation of the shafts, suggests that no provision was made to drive the infeed rollers from either of these two shafts. The other end of the thrashing drum would have been fixed by a bearing block to the top of the front part of the outer beam of the frame, which has been cut off.

Study of the arrangement of the bearing blocks, axles and gearwheels suggests that there could have been another gearwheel on the other end of the axle of the thrashing drum. This would have been used to drive the infeed rollers, and there are two possibilities to explain how this could have been done. Initially I considered the use of two intermeshing gearwheels; a small wheel fixed on the axle of the drum and a larger wheel fixed on the lower axle of the infeed rollers. The drawing of the gearing of this machine shows the use of two such gears. These gearwheels would have had to be fixed on the ends of their shafts to allow sufficient clearance from the frame for two smaller meshing gears, each one fixed to a single shaft of the two rollers. This system is not supported by examples in the available literature.

Available information does show that the rollers of some threshing machines were driven by bevel gears. It is probable that bevel gearing was used on the machine at Appleton and that it would have required additional gearing to achieve the correct gear ratios. As this machine is fixed so closely to the wall of the barn, all this gearing would have had to be fixed to the outside of the machine and perhaps needed to be enclosed by wooden planking.

This arrangement would have taken up additional space and would have presented a significant obstacle inside the room. If this were so, then this could have been the single most important factor which led to the removal of this part of the machine. I have not been able to study an example of this type of gearing, and so I have not attempted to include any such detail in the drawing of the gearing. Nevertheless, the underlying principle of how the rollers were driven remains the same.

The machine at Appleton Mill is very similar to the one at Ryedale Folk Museum. Starting with the same speed of the rakes at 31rpm, it is possible to work out all the other gear ratios and shaft speeds. The thrashing drum rotated at 783rpm and the infeed rollers at 334rpm. The wooden layshaft would have revolved at 62rpm, information that helps to determine the gearing mechanism inside the mill. A diagram of the gearing of the threshing machine is below.

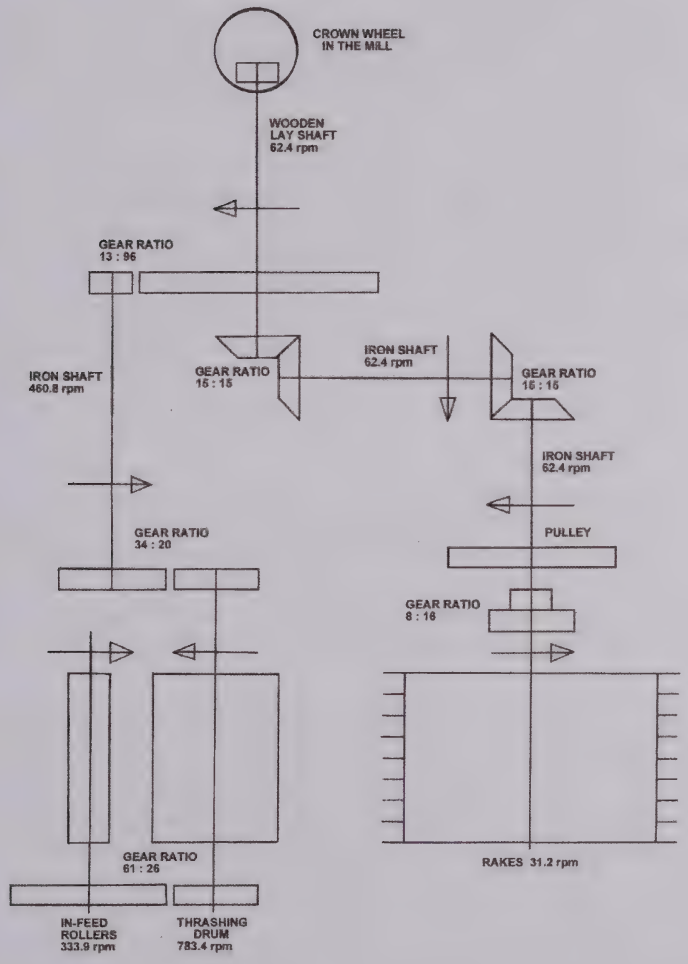


Figure 3: Gearing of the Appleton Mill barn threshing machine.

The Machinery of Appleton Mill

Harrison's extensive research on the development of mills in northeast Yorkshire,[20] as well as Zealand's 1969 survey of Ingleby Greenhow Mill,[21] point strongly to the similarities between Ingleby Greenhow Mill and Appleton Mill. The former was rebuilt in 1817, just three years after 1814, the probable date of the installation of the upright shaft and threshing machine at the latter.

Zealand's survey records that the mill at Ingleby Greenhow had some cast-iron gears and both the pit wheel and the wallower were made of cast iron. The spur wheel and the crown wheel were both made of wood. A cast-iron gear ring was fixed to the top surface of the crown wheel. There were three metal layshafts, each having a cast-iron pinion with wooden teeth, which meshed with the gear ring of the crown wheel. A lever was used to engage or to disengage the pinions.[22]

It is seems very likely that the machinery at Appleton Mill would have been similar in structure to that at Ingleby Greenhow and that it probably had some cast-iron gears. The account of the mill at Ingleby Greenhow offers additional information on which to base a description of the machinery at Appleton Mill.

To begin with the waterwheel: the walking speed of the horses at Ryedale Folk Museum was chosen to be 4.4ft per second. The waterwheel at Appleton mill has a diameter of 14ft; if this also turned at 4.4ft per second, then the shaft of the waterwheel together with the pit wheel would have rotated at a speed of 6rpm.

At Ingleby Greenhow the gear ratio between the iron pit wheel and the iron wallower was 2.67:1. The pit wheel of Appleton Mill was probably 8ft in diameter. Assuming that the equivalent gearwheels at Appleton mill were also made of cast iron and that the ratio was 2.67:1, then the wallower could have had a diameter of 36in. If so, the upright shaft could have turned at 16rpm.

The wooden upright shaft would need to be at least as wide as the shaft supporting the waterwheel. It was probably octagonal in section, about 11.5ft long and about 18in in diameter. The wooden spur wheel was probably 8ft in diameter and would have driven at least two sets of stones. By 1814 it was common for the mill stones to be driven at 120rpm.[23] If the stones at Appleton Mill revolved at 120rpm, the pinions driving the stones would have been about 13in in diameter.

The diameter of the crown wheel would have been controlled by the ratio between the speed of the upright shaft and the speed of the layshaft. The study of the barn threshing machine has indicated that the wooden layshaft used to drive the machine would have rotated at 62.4rpm. This knowledge makes it possible to define the gear ratio, which would have been about 16:62. The crown wheel would have had a wide diameter in order to reach such a high gearing ratio. The large size would have provided ample room on the perimeter of the crown wheel to drive several layshafts, and there is evidence that there were at least two layshafts.

Although the gear ratio is known, there is no evidence to tell us either the number of teeth on the gears or to show how the pinion was fixed to the layshaft. There are two possibilities for how the gearing was achieved.

The Square-ended Layshaft

The stub-end of the lay-shaft which drove the threshing-machine is 10in square. If the other end of the shaft was also 10in square, then the pinion would have to be fixed around the square, and the smallest diameter for the gear would be 18in. With a gear ratio of 16:62, the gear ring fixed on the crown wheel would have a diameter of 70in. The crown wheel would need to be 6ft across. This option is not likely, because such a large wheel would rub against the wall of the mill.

The Octagonal Layshaft

The second layshaft is octagonal in section, and it is likely that both layshafts were octagonal. An octagonal shape gives the shaft a smaller circumference, compared with a square shape. Based on a 10-in octagonal section, the smallest pinion diameter would be 14in. With a gear ratio of 16:62, the gear ring on the crown wheel would have a diameter of about 54in. The crown wheel would need to be only 4ft 8in in diameter. It is interesting to note that the wooden shaft used to drive the threshing machine at Ryedale Folk Museum is also octagonal in section and has a small-diameter iron pinion fixed at the end, which meshes with the iron gear ring on the horse wheel.

Of the two possibilities, the second option seems to be the more practical solution. The use of octagonal shafts would have given a significant reduction in the size of the crown wheel and the pinions, which would also have made them cheaper to install.

The sack hoist could have been driven by a belt from one of the layshafts. The use of two or three layshafts would explain how the mill was able to drive the farm machinery, which included a threshing machine, a turnip-cutter and a chaffing machine. Following this line of reasoning, a description of how the mill machinery would probably have worked and how it may have looked before it was dismantled can be given.

- A wooden waterwheel, still on site, with a diameter of 14ft, assumed to turn at 4.4ft per second or 6rpm.

- A wooden shaft with a diameter 18in, supporting the waterwheel and driving the pit wheel. Most of the shaft has been removed, but what is left continues to support the waterwheel.

- A pit wheel, 8ft in diameter and probably made of cast iron, probably turned at 6rpm.

- A wooden upright shaft, probably octagonal in section, and about 11.5ft long and at least 18in in diameter.

- A wallower, 3ft in diameter and probably made of cast iron, which engaged at right angles with the pit wheel and would have driven the upright shaft at 16rpm.

- A spur wheel, probably 8ft in diameter and made of wood. This was fixed above the wallower and probably drove two pinions, each of 13in in diameter, which in turn drove the millstones. There were sets of German basalt stones and French burr stones. These stones, together with a grit stone, are still on site.

- The crown wheel was fixed at the top of the upright shaft. It probably had a diameter of 54in and was made of wood. Around the top edge there was probably an iron gear ring, which would have driven the layshafts.

- One wooden layshaft, probably octagonal in section, passed through the wall and over the leat to the adjoining barn. The remaining piece of the shaft is 10in square and supports a large gear wheel, which was used to drive the barn threshing machine. This part of the mechanism is still in place above the leat.

- One wooden layshaft, octagonal in section, spanned the roof beams. The remaining section is 9in across, and the end is 9.5in square, showing that a pulley was probably attached to the shaft. It is now used as part of a door frame. It was previously probably used to drive the sack hoist as well as other machinery. The drum of the sack hoist is still on site.

- It is possible that there could have been a third shaft, which could also have been used to drive some of the farm machinery, but there is no evidence to confirm this.

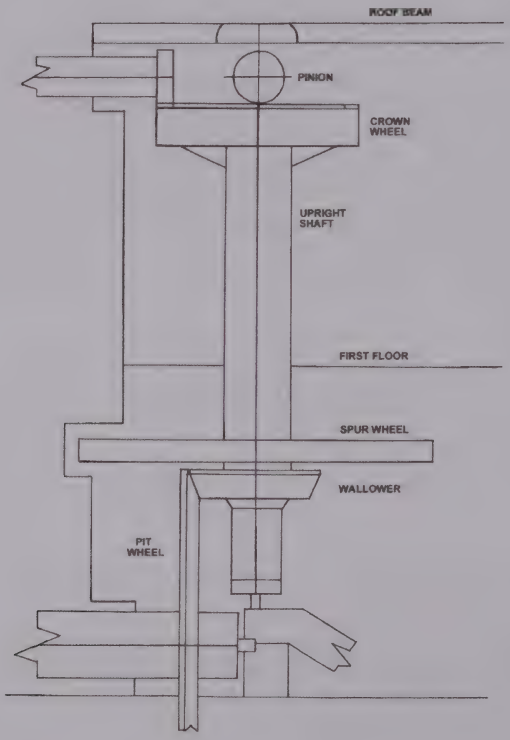


Figure 4: Possible arrangement of the machinery inside Appleton Mill.

Acknowledgements

I thank the owners of the mill, Mr and Mrs Jonathan Allison, for their support and for allowing me access to the mill and associated buildings to study the machinery. I am grateful to the-then director of the Ryedale Folk Museum, Mr. Kevin Simms, for allowing me access to study the barn threshing machine and to his staff for their help and assistance. I greatly appreciate the help of Mrs Mildred Cookson of the Mills Trust, who has provided me with information about barn threshing machines. Finally, I thank Miss Rachel Grahame, of Tees Archaeology, Hartlepool, who kindly sent me a copy of the survey of the mill at Ingleby Greenhow.

Appendix 1: Gearing Details

The barn threshing machine at Ryedale Folk Museum employs both gear wheels and pulley wheels. In the case of pulley wheels, a continuous flat belt is used to connect two wheels. The belt transfers the speed of rotation from the first pulley wheel to the second pulley wheel. The gear ratio of two wheels is the ratio between their diameters. If one wheel has a diameter three times greater than the other, then the circumference is also three times greater, and the gear ratio is 3:1.

In the case of gear wheels the same principle still applies, but consideration must be given to the number of teeth on the circumference of the wheel. Knowing the diameter of the wheel, it is possible to calculate the circumference. The circumference divided by the pitch of the teeth will give the total number of teeth. It is likely that this figure will not be a whole number and should be rounded down to find the correct number of teeth.

Two types of gear wheels have been employed to drive the barn threshing machines. They differ in the pitch of the teeth. The cast-iron gear wheel found on the wooden layshaft used to drive the machine at Appleton Mill has a diameter of 52in and 96 teeth. The circumference is 163.42857in. The pitch is 163.42857/96, which is 1.70238in. This gear wheel has a larger pitch than those gear wheels used on the threshing machine. The cast-iron gear wheels used on the metal axles at the back of both of the threshing machines have a pitch of 1.2857in.

The pitch of the teeth was checked on one gear wheel on each threshing machine. A gear wheel on the machine at Ryedale Folk Museum has diameter of 36in and 88 teeth. The circumference is 113.14285in, and the pitch is 113.14285/88, which is 1.2857in.

A gear wheel on the machine at Appleton Mill has just 8 teeth. The circumference is 113.14285 multiplied by 8/88, which is 10.2857in. The pitch is 10.2857/8, which is 1.2857in.

In both cases the measurement across the teeth is approximately 1.25 inches. The pitch is the same for both gear wheels, which suggests that the same pitch has been used for all the gear wheels used on the axles of the threshing machines.

The figures calculated for the pitch of the gears have been used to calculate the number of teeth on those gear wheels which are missing. At Ryedale Folk Museum it was possible to measure the diameter of a missing gear wheel, and then to calculate the likely number of teeth and the gear ratio.

At Appleton Mill the expected speed and direction of rotation of the rakes, the thrashing drum and the infeed rollers needed to be compatible with those previously worked out for the machine at Ryedale Folk Museum. The machine at Appleton Mill has several missing axles and gear wheels, associated with the missing infeed rollers and thrashing drum. By measuring the distance between the known positions of the missing axles, it has been possible to work out the likely diameter of

the gear wheels employed and the likely number of teeth on each gear wheel. It has then been possible to work out the gear ratios and the likely speed of rotation of the shafts, while ensuring that the details of both machines are compatible.

Notes

[1] The mill is owned by Mr and Mrs Jonathan Allison of Hamley, Appleton-le-Moors.
[2] M. Allison (2003), *History of Appleton-le-Moors: A 12th Century Planned Village*. Appleton-le-Moors: M. Allison.
[3] J.K. Harrison (2008; first edition 2001), *Eight Centuries of Milling in North East Yorkshire*. Helmsley: North Yorkshire Moors National Park Authority.
[4] A. Zealand (1968), Ingleby Greenhow Mill. *Bulletin of the Industrial Archaeology Society of the North East* 7, pp. 10-16.
[5] Allison, op. cit., p. 187.
[6] Harrison, op. cit., p. 217.
[7] ibid., p. 65.
[8] ibid., pp. 65-79.
[9] Allison, op. cit., p. 190.
[10] Harrison, op. cit., p. 217.
[11] ibid., p. 78.
[12] Allison, op. cit., p. 189.
[13] Harrison, p. 79.
[14] ibid., p. 99.
[15] ibid., p. 217.
[16] ibid., p. 281.
[17] ibid., p. 101.
[18] ibid., p. 87.
[19] ibid., p. 146.
[20] See Harrison, op. cit.
[21] Zealand, op. cit.
[22] For a diagram of the mill see Harrison, op. cit., pp. 94-95.
[23] ibid., p.100.

Ancient 'Cat' Names in the Ryedale Landscape

by Margaret Allison

I have long noticed and been interested in the frequency of 'cat' words in old place-names. Were they all personal names or were they references to the domestic or wild cat, or was there another explanation? My initial interest grew from the 'cat' name on my doorstep, an ancient woodland called Cattemereclif in the thirteenth century which adjoined our fields. I say that it is ancient woodland in the sense that it has been continuously wooded probably since the ancient Britons were occupying the landscape. It is a steep north-facing wood containing ancient woodland indicators. Its steepness made it unsuitable for arable fields or pasture and hence it remained woodland through the centuries. I then began looking for other woodlands with 'cat' names and similar characteristics. I knew the early British word for woodland had many similar spellings, such as chat, catt, chet, cet. The earliest place-names in England are those of Celtic or British origin. British was the language spoken by the native population both on the arrival of the Romans (first to fifth century CE) and subsequently on the Anglo-Saxon incursions of the fifth century. I use the word British to indicate this ancient Celtic language in what follows.

The catalyst for writing this article came about as a result of reading Nicholas Higham's *The Kingdom of Northumbria* in which the author discussed the survival of British place-names in the English landscape. He wrote ' ... and English place-names eventually replacing the vast number of pre-existing names, leaving only certain categories of names, such as major rivers, hills and other key central places ... ' with British names.[1] I propose to make the case for the survival of another category of British place-names. I will give examples of it in Ryedale and the surrounding area and so add to Higham's categories. The name referring to woodland survives principally as the place-name element 'cat' but with many spelling variations, such as chat/chet/catt(e)/kit/ket.

The place-name authority Eilert Ekwall specified the British/Celtic name for forest or wood as derived from the following: British 'ceto', old Celt 'kaito' and Welsh 'coed'. He gives as examples Chatham in Essex (with variations of Cedaema, Ceteham, Caetham)[2]; and Chetwode in Berkshire (variation Cetwuda)[3]. However, Ekwall also considered that the 'Old Welsh "cateir" must have been used in transferred sense of hill or hillfort.' He gave as examples Chadderton (var. Chaterton)[4]; and the first element in Caterham, Catterton, Catherington.

The difficulty is that the word 'cat' might mean woodland or it might mean a hill with the defining connotation of steepness. Many of the examples that I have found were of ancient woodlands on steep slopes and so the ambiguity remains. Thus the 'cat' names that have survived in our area are often characterized by ancient woodlands on steeply sloping hills. By the very nature of their steep terrain they are unsuitable for agriculture and not possible to plough or good to graze. As a result, they have remained woodland and are permanent features of the landscape in the same way that rivers are. They were here in Romano-British times and remain with us now. They sometimes form a significant boundary, such as a parish or township boundary. Their very survival as possible British place names may in some cases be due to the importance of their location on a boundary. The Anglo-Saxons retained the defining names from the earlier British landscape (such as the names of rivers) which often coincided with boundaries. The survival of the 'cat' names may mark them as significant in the early landscape: perhaps they too were important as boundaries or

markers of ownership. If this were the case, then 'cat' names could serve as a guide in understanding the organisation of the prehistoric period in the way that rivers do.

These original British names of woodland survived into the Anglo-Saxon period and down to the present day as composite names with recognisable constituents. The compound name consists of two or more parts; the earliest element is the first, British, part followed by the Anglo-Saxon or Scandinavian element and completed by the modern element. For example, Kitscrew Wood on the Hovingham /Wath boundary is made up of the following parts: British 'kit' (wood), Old English 'sceaga'/Old Norse 'skew' (wood) and modern English 'wood'.[5] Each succeeding people kept the earlier name and added to it their own term, which then explained the terrain to them. The fact that the 'cat' is the first element in the place-name argues that it is the inactive element in the dialect and hence the earliest part of the place-name. The great age of the 'cat' element will always make it subject to speculation. It may be that its very great antiquity has contributed to its survival as a place-name: once the cat name became locked into the landscape description, its continued use was thereafter established. This was probably especially true in the case of cat names on steeply wooded slopes where the landscape use would not change.

Margaret Gelling has already noted the association of the word 'chad' with wood on a slope. She gave several scattered locations for the place-name 'chad': one in Wiltshire, another in Devon and a third in Berkshire. For example, she wrote that Chaddlehanger in Devon is derived from the personal name 'Ceadela' and 'hangra', meaning wood on a slope. She ascribes the word 'chad' to the unrecorded personal name of Ceadela and pointed out that it is not too much of a coincidence to have three men called Ceadela associated with woods on hillsides. But she then added the caveat that 'if any more instances of "Ceadela's wood on a slope" are found, it will be necessary to think again.'[6] Surely the 'cat' names, many of which refer to a wood on a slope, found in the Ryedale area add to the case for thinking again.

Map 1: Possible locations of 'cat' place-names in Ryedale.

Some possible examples of ancient British 'cat' names in our area are given below.

The first list contains the more significant 'cat' names in our area and are numbered on the map 1–8. This article does not give a uniformly thorough coverage of the area; it is what has survived in the record. It is hoped that more will come to light. The Ordinance Survey grid reference is given where possible to help the reader locate the entry, but because many of these names have died out they will not necessarily appear on contemporary OS maps. Many of the entries have been identified through another source, such as tithe awards, enclosure awards, medieval chartularies etc.

Some 'Cat' Names in the Ryedale Area

1. Cattgate (OS 797850) is an area just to the north of Lady Lumley's School, Pickering.[7] It is a hilly area of rough pasture with quarries and trees, including a very steep wooded slope. It adjoined the Rookers Wood (1848 OS map) to the south and the Haggs to the north. The names Rookers and Haggs both indicate woodland and it seems likely that these three contiguous areas of Rookers, Cattgate and Haggs were medieval managed woodland. Thus the name Cattgate means 'wood road', perhaps referring to a continuous area of woodland along the present-day Swainsea Lane.

2. Cattmoor Wood (OS 743891) is on the northeast boundary of Appleton-le-Moors, near the boundary between the Anglo-Saxon parishes of Lastingham and Middleton. It is an ancient woodland on a steep northeast-facing slope. The earliest reference to it in about 1300 called it Cattemereclif, meaning 'wood on the boundary hill'.[8] Other references are to closes adjoining the wood: Cattmer in 1550[9] and Great and Little Catmere in 1849.[10] The last reference to the wood is to Cattmoor Wood in 1849.[11]

3. Catthwait Laund (proposed location is OS 722859) is a wood clearing in the forest of Spaunton. It is in the area of Catterbeck, a stream going through the bottom of a once steeply-wooded bank, now the massive Spaunton Quarry. Catter Bridge on the A170 crosses the stream and is the site of a medieval ford, called Chatwatt, mentioned in 1201 in a confirmation charter of King John.[12]

There is a reference to it in a 1328 document in which King Edward III complained about the small amount of game in the area and said that he would suffer no loss if he exchanged it with that of the Abbot of St Mary's, who was then the Lord of the Manor of Spaunton, because '... the forest of Spaunton between the Dove and the Seven is too confined ... from the boundaries of Cleveland to the road [this would have been on the line of the modern A170] which leads from Pickering to Helmsley through the laund [wood clearing] of Catthwait is only 3 leagues and beasts do not frequently repair there.'[13]

The area of Catterbridge marks the meeting place of the three parishes of Lastingham, Sinnington and Kirkbymoorside, all of great antiquity, with Anglo-Saxon carvings in each of their churches. Catthwaite and Chatwatt may be examples of name survival due to an important boundary. The place-name is conserved in today's OS map at Catter Bridge, as well as Catter Beck, on the A170, and in Catterbridge farm.

4. Catsty (OS 702898) is in Hutton-le-Hole. Raymond Hayes referred to 'catsty, a pathway up Hutton Westfield Wood, now disused.'[14] Bert Frank also talked of this old path as 'Catsty'.[15] The Westfield Wood of Hutton is ancient woodland on a steep gradient. The sty or 'ladder' suggests a steep path.

5. Cat Scar (OS 672868) is located to the west of Kirkbymoorside on its boundary with Kirkdale and Welburn. It is a very steeply banked wood. The wood is referred to in the 1609 Survey of Kirkbymoorside in the section on woodland as 'Cattscarre 70 acres ... of the hagg 40 acres lieth waste.'[16] Today much of the wood has been planted with firs and pines. 'Scar' means gap or notch in Old English, and can also mean a rock or cliff face in Old Norse. There is no obvious part of this wood that can be described in this way. Although it can only be speculation, it is possible that we have here the Old English sceaga/Old Norse skogr both of which mean wood. Thus Cat Scar could be a tautological name in which both Cat and Scar mean wood. Like other examples given in this article, it may be that the earlier British word had ceased to be in common use and so the explanatory later word was added.

It is likely that, with its steep terrain, Cat Scar has always been woodland. It is a significant boundary feature between the ancient parishes of Kirkbymoorside and Kirkdale, both of which have strong Anglo-Saxon associations and sculpture in their churches.

6. Raymond Hayes wrote about Catsty as an unlocated 'pathway on the west side of Ousegill Beck, Bransdale.'[17] Two possible locations are, first, a path (OS 642938) leading to Ankness House. It is a steep path, as suggested by the word sty or ladder, and the beck is wooded in this area. The second possible location is a public bridleway and track at OS 639947, a continuation of the Bransdale Road. It is steep and not wooded.

7. Catherine House, Bransdale (OS 620953) may take its name from the steeply wooded area on its western flank. In the Rievaulx Dissolution Survey of 1539 it was named as Catteringe Field House.[18] On the 1841 Census it was called Cattern House. The farms next to it are called High and Low Elm Houses.

It seems worthwhile to digress here to a discussion by Albert Smith in his book on place-names in the West Riding on the British place-name, Catterton, south of York. Smith was quite adamant that this is a British place-name,[19] and gave similar examples of it elsewhere in the country. One of his examples is very like the 1539 Rievaulx reference above; the reference in *c.* 1015 was to a place (unlocated) called Cateringatune. This Cateringa-ton comes from a pre-Conquest charter roll now in the British Museum.[20] There is also a Catherington in Hampshire. In the circumstances, I think we can be even more confident that the place-name Catherine House in Bransdale is British in origin.

8. Kitscrew Wood is in Wath (OS 670748) on the boundary with Hovingham. The wood is on a steep bank that was replanted with beech some 40 years ago. The wood also has sycamore and several examples of spindle, an ancient woodland indicator, and a ground cover of dog's mercury. The wood adjoins Moody Hill, a possible Anglo-Saxon assembly place.[21] The tautological name may be derived as follows.[22]

Kit	**Screw**	**Wood**
Brit. *ket/cat*	Old English *sceaga* Old Norse *skogr*	Mod. Eng.
wood	wood	wood

'Cat' Names beyond Ryedale

The entries below are included as a small sample of the great proliferation of 'cat' names in a wider area. These few examples were chosen because they seem to be ones where further investigation would be useful.

1. Cotcliffe Wood (OS 423920) is near Borrowby and Northallerton. The steeply-sided wood adjoins those of Landmoth and Sigston along Cod Beck. These woods were visited by the Woodland Group of the Yorkshire Philosophical Society in *c.* 1987. The group found that the woods had been partly planted with conifers, but also contained small-leaved lime and coppicing as well as good indicator plants, suggesting ancient woodland.[23]

   There is a reference to Catto Wood in a fifteenth-century document [24] and Catto Hall survives nearby. It seems likely that this is an ancient woodland and should be considered along with the other 'cat' examples. Barry Harrison has pointed out that the road alongside Cotcliffe Wood is a medieval ridgeway.[25]

2. Cat Nab, near Flamborough (OS 213733) is located at the northern terminus of Dane's Dyke on the cliff edge. Dane's Dyke is a huge prehistoric earthwork and woodland that runs 2.5 miles across Flamborough Head.

3. Chatburn is a village near Clitheroe. Adjoining it on the east is Cat Gallow Wood. The wood is steeply banked in sections and near a Roman road.

4. Cat Wood, Stanwick Iron Age Fort, North Yorkshire (OS 185118) near Scotch Corner. Cat Wood forms the norhwest boundary of the earthworks of the Iron Age fort.

5. Catcleugh, or 'cat rock', on the A68 to Edinburgh, in the Cheviots on the border between England and Scotland. Catcleugh Shin is 1742 metres high and on the national boundary.

6. Cattersty, to the west of Skinningrove (OS 705205). Raymond Hayes called it 'a bank, wood, and ravine, shown on the 1850 O.S. map.'[26] Cattersty Sands is shown on today's OS map.

7. Wilfrid Crosland pointed out that Monket House in Farndale may be derived from 'standing stone in the wood'; in modern Welsh, 'maen-coed'.[27] In ancient British, the 'mon' is a standing stone and the 'ket' is a wood.

8. Kate Ridden Wood (OS 67501480) is shown on the six-inch OS 1958 map and, along with Kateridden Beck and Kateridden Farm, is located between Moorsholm and Stanghow (north of the modern A171). It is a steeply banked ancient woodland, with coppicing and bluebells.

   The *Victoria County History* refers to Skelton Warren Woods, which adjoin the Kateridden area, as 'probably the remains of the chase of Westwyk with the forest as the highway extends between Stanghow and Kateriden'.[28] This reference to a thirteenth-century document suggests an area of woodland. The place-name here, however, may combine the Old Norse personal name Kati with the name for clearing (ridden, var. Cadringe, 1301).[29] But it is also possible that the name 'Kate' or 'Cad' means wood. Kate Ridden Wood bears some resemblance to the assemblage of names associated with Cattmoor Wood (see above), where Cattmoor Wood adjoins the Ridings (Appleton T.A. No. 6) and the Ridings Wood (T.A. No. 8). The dominant theme in each case is wood and the clearing ('ridding') of the wood.

9. Also of interest are the various Cotswold/Coxwold names that occur all of which may be ancient forest names.

   a. Coxwold, North Yorkshire (Cuha-walda in the eighth century) attributed to an unknown Anglo-Saxon personal name, meaning 'Cuha's wood/forest'.[30]
   b. Cuxwold, Lincolnshire, 'Cuca's forest'.[31]
   c. Cotswold, Gloucestershire, 'Cod's wald or forest.[32] It seems reasonable to query whether it is correct to attribute an Anglo-Saxon personal name to the first element of 'cots/cox' (and an unknown one at that in one or possibly two of the examples) and, coincidentally, in three different parts of the country. It has to be a possibility that the 'cots/cox' element is the earlier British 'wood/forest', and that Cotswold/Coxwold is a tautological name.

10. A puzzling name is Cat Babbleton which occurs twice in seemingly incompatible circumstances.

    A farm called Cat Babbleton on the Wolds near Foxholes (OS 001745) is the site of an archaeological excavation of a pit alignment dating from the late Iron Age to the Roman period.[33] The nearest wood to the farm is almost half a mile away. This wooded dale is called Owlet Dale, and was mentioned in a twelfth-century document.[34]

    Another Cat Babbleton is near Camblesforth, south of Selby (OS 627283). It is a small surviving relic of ancient woodland. It is in a very wet area. To its south is a large common which was once partly wooded.[35] It is interesting that Smith in his place-name study mentioned the second Cat Babbleton, but gave no interpretation.[36] It was rare for Smith to give no meaning for a word. He did not mention the first Cat Babbleton at all in his otherwise excellent East Riding volume.

11. The name Catmer Ing occurs on the parish boundary between Sheriff Hutton and Terrington.[37] 'Ing' is Old Norse for pasture or grassland. The place-name may mean 'wood boundary of the pasture'.

Conclusion

The study of place-names seeks to find as many early spellings of the word as possible; the development of the sounds of the word; and the topography of its particular place. With these criteria in mind, the study of those cat names that might mean woodland and/or hill and so be of British origin is necessarily difficult. Many of these names do not survive on modern maps. If they do, that can only be the most uncertain of starting points because so much time has elapsed. The earlier the written source, the better. In Ryedale these are medieval sources, that is charters, deeds, wills, etc. Later material, such as Enclosure Awards and Tithe Awards, is useful too, and one encouraging aspect is that the eighteenth- and nineteenth-century names they record are mostly topographical and can be traced back through the centuries to the early records. In other words, with topographical names there is a long continuity of use from early times to relatively recent times.

The study of cat names is by its nature complicated. This is partly because there are so many of them, but also because they are early in origin. For the purposes of future study, because 'cat' names in one form or another are so frequent, scholars may wish to regard with some scepticism any explanation that relies on the attribution of a personal name. It is hoped that this article will stimulate interest and further research by others.

Notes

[1] N. Higham (1993), *The Kingdom of Northumbria AD 350-1100*. Stroud: Sutton, p. 100.
[2] E. Ekwall (1936;1960), *Concise Oxford Dictionary of English Place-names*. Oxford: Clarendon Press (4th ed.), p. 97.
[3] ibid., p. 101.
[4] ibid, p. 93.
[5] A. Mawer (1924*), Chief Elements in English Place-Names*. Cambridge: Cambridge: University Press, pp. 51, 53.
[6] M. Gelling (1978), *Signposts to the Past*. London: Dent, p. 172.
[7] Personal loan of John Rushton's reconstruction map of the eighteenth-century Enclosure Award of Pickering. The map is in the John Rushton Archive (not yet indexed) at the Ryedale Folk Museum.
[8] Minster Library, York, St Mary's Chartulary, f. 188.
[9] NYCRO, Northallerton, Darley Calendar ZDA.
[10] NYCRO, Northallerton, Spaunton Tithe Award.
[11] NYCRO, Northallerton, Appleton-le-Moors Tithe Award.
[12] W. Dugdale (1827), *Monasticon Anglicanum*. Vol. V, p. 665. King John is confirming an earlier charter of his father Henry II, which confirmed to Keldholme Priory that its boundaries extended from Kirkbymoorside to the modern-day Catterbridge (the medieval ford of Chatwatt). The charter further confirms that the boundaries of the medieval manors of Spaunton and of Sinnington and of Kirkbymoorside also met at Chatwatt.
[13] R.B. Turton (1897), *Honor and Forest of Pickering*. N.R.R.S., vol. 2, pp. 268-71.
[14] R.H. Hayes (1988), *Old Roads and Pannierways in Northeast Yorkshire*. Helmsley: North York Moors National Park, p. 71.
[15] Personal comment to author.
[16] Public Record Office, Inquisition 8 James I (1609), LR2/186.
[17] R.H. Hayes, op.cit., p. 71.
[18] J.C. Atkinson (Ed.) (1889), *Rievaulx Chartulary*. Leeds: Surtees Soc., vol. 83, p. 334.
[19] A.H. Smith (1961). *Place-Names of the West Riding*, part IV. Cambridge: Cambridge University Press, p. 237. A.H. Smith (1903-67) is the principal authority and writer on place-names in Yorkshire.
[20] Smith (1962), *Place-Names of the West Riding*, part VII, p. 96.
[21] M. Allison (2011). Anglo-Saxon Assembly Places in Ryedale. *Ryedale Historian*, 25, p. 40.
[22] A. Mawer, op. cit., p. 53.
[23] Yorkshire Philosophical Society (1989), Annual Report, p. 20.

[24] *Victoria County History* (North Riding) (1914), vol. 1. London: Constable, p. 44.
[25] B. Harrison (1984). *Sciantes Presentes*, No. 13. Leeds: Yorkshire Archaeological Society, p. 5.
[26] R.H. Hayes, op. cit., p. 71.
[27] R.W. Crosland (1947), Yorkshire Treasure. York: Yorkshire Gazette, p. 81.
[28] *Victoria County History*, vol. 2. London: Constable, p. 404.
[29] A. H. Smith (1928). *Place Names of the North Riding of Yorkshire*. Cambridge: Cambridge University Press, p. 147.
[30] E. Ekwall, op. cit., p. 127.
[31] Ibid., p. 137.
[32] Ibid., p. 124.
[33] P. Cardwell (1989). Excavations at Cat Babbleton Farm. *Yorkshire Archaeological Journal*, 61, p. 15-27.
[34] A.H. Smith (1937). *Place Names of the East Riding*, Part IV. Cambridge: Cambridge University Press.
[35] The reference to this common is from a reconstruction map by John Rushton in the Ryedale Folk Museum, John Rushton Archive, Ainsty Maps, No. 4.
[36] A.H. Smith (1961), op. cit., part IV, p. 7.
[37] From the J. Rushton Map Archive at the Ryedale Folk Museum. Box: Bulmer, no. 28. This map is hand drawn by J. Rushton.

Philip Rahtz and John Hurst: Wharram Percy and Medieval Archaeology

by Lorna Watts

Philip Rahtz and John Hurst had a significant impact on the archaeology of Yorkshire and beyond. They were near contemporaries and close friends for over 50 years.[1] Their careers encapsulate much of the development of post-war archaeology in Britain, especially of medieval archaeology and also show how its divergent strands were united in their partnership in the later years of the Wharram Percy Research Project.

Hurst was essentially the establishment man with a government salary, the 'man from the ministry' (the Ministry of Public Buildings and Works, later English Heritage). Rahtz was the 'dirt archaeologist': poorly paid for individual excavations and completely unremunerated for the essential task of writing up excavations and other archaeological investigations for publication.[2] But neither was typical of his position. Both had a wide interest in many aspects of archaeology, Hurst from his Cambridge days, Rahtz from his wartime experience of both sites, especially on the Salisbury Plain, and military-sponsored education. Hurst was essentially an enabler, who worked quietly, self-effacingly and effectively within a government organisation[3], the person who Rahtz described as 'the prime instrument in providing the circumstances and encouragement which led me to being a professional archaeologist in the first place.'[4] Rahtz himself was not the ignorant self-styled archaeological tramp,[5] but instead someone with an understanding equal to Hurst's, a natural educator working in all periods from the Mesolithic to the post-medieval. They were also temperamentally similar in being non-argumentative, engaging instead in constructive discussion.

From their different bases, both went to work towards the establishment of the methodology of medieval archaeology, through the application of approaches suitable to the situation and through the study of the resulting material remains, such as pottery.[6] Both were ceaseless producers of interim excavation reports, important but neglected sources for changing attitudes to ongoing excavations over the decades, which provide a gauge to what was of contemporary concern, often many years before these projects were fully published. Rahtz developed an interest in the post-Roman–Anglo-Saxon interface, as did Hurst in the complementary pottery sequence. Both were thus major players in the evolving dynamics of British archaeology, not least through what has been described as 'networking' long before the term was invented.[7]

Their 50-year interaction over the second half of the twentieth century is part of a wider subject, the cross-fertilisation brought about by individual collaborators, particularly within medieval archaeology. This includes the influence of both prehistory and prehistorians, and of history and historians.[8] The development of medieval settlement studies was stimulated in the post-war period by the Cambridge economic historian Michael Postan, whose 1948 seminar on this subject was attended by both Jack Golson, one of his own students, and Rodney Hilton, a medieval historian. Golson became Hurst's contact with open-area excavation techniques, exploited at the deserted medieval village of Wharram Percy, which itself was the meeting place of Hurst and another historian, Maurice Beresford.[9] Hilton later met Rahtz through another deserted medieval village, Upton. Hilton was interested in non-aristocratic aspects of medieval history,[10] whereas what focused Beresford's attention at Wharram Percy was the date of its desertion. Hilton

was subsequently responsible for Rahtz's first appointment to academic life at Birmingham in 1963. Hilton also had a direct bearing on Rahtz's later application for the new chair of archaeology at York; it was in reply to criticism about why a medieval archaeologist was digging at Roman Kenchester that he reconsidered the relationship between archaeology, history and universities so that the issue was thought through when he applied for the position at York.

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Hurst's and Rahtz's working and personal lives first crossed in the 1950s, after which much of the latter's early archaeological work was obtained through the former and directed to the post-Roman period. They first met in 1953 at the Chew Valley Lake, a major rescue project in Somerset, where settlements of all dates and types were recorded within a landscape setting. Hurst was the Ministry contact and Rahtz, together with Ernest Greenfield, the freelance excavator. Rahtz has detailed how Hurst persuaded them to excavate the medieval as well as the prehistoric and Roman sites (medieval sites were then regarded as akin to modern and beyond the bounds of archaeology); and also to use open-area excavation techniques, as opposed to excavation within grids.[11]

For the allied area of settlement studies 1953 was also significant. It was the first year of the recently founded Deserted Medieval Villages Research Group which involved both Hurst and Rahtz. Its main aim 'was to co-ordinate work by people in different disciplines to give the best chance of advancing our . . . understanding of medieval peasant life'.[12] Wharram was its main *research* project, but at the same time many other deserted medieval villages were the subject of *rescue* excavations, so much so that three reports in the first volume of the Deserted Medieval Villages Research Group *Annual Report* of 1953 were by Rahtz and Greenfield.

During the following years, Hurst's work for the Ministry gave him an overview of what was happening in medieval archaeology, while Rahtz gained this in the field. These views were often discussed when Rahtz visited Hurst and his family at home in London, between visits to the opera, or when Hurst stayed in Bristol with the Rahtzes. Their experiences of deserted medieval village excavation were however at this time rather different. While excavators at Wharram were systematically investigating a single peasant plot using open-area excavation, as early as 1953 at Moreton, Somerset Rahtz and Greenfield recommended 'that the whole village should be completely stripped by mechanical digging and the buildings then cleared down by hand to give an overall plan of the village at all its different periods.'[13] Rahtz was also interested in the general character of deserted medieval villages when he commented on Holworth in Dorset that 'insufficient data is at present available to say how Holworth compares with medieval villages elsewhere in England; few have yet been explored'; and '. . . the type of building construction, the intangible nature of the remains, and the extreme difficulty of their interpretation is very much in accord with that encountered on such widely separated sites as Moreton and Wharram Percy'.[14] The contemporary Wharram interim reports, in contrast, were concerned with site data and interpretation rather than with how it contributed to the general subject.

Among the salient archaeological concerns in the late 1950s–early 1960s was the sheer number of rescue excavations in Britain during that period of public reconstruction (including that of the palaces at Cheddar[15]) and the recognition of medieval archaeology as a valid subject. The latter was marked by the formation of the Society for Medieval

Archaeology in 1957 in which both Hurst and Rahtz were involved.[16] Wharram Percy was among the subjects of its first conference at Sheffield; Wharram and four Rahtz sites were reported in the article 'Medieval Britain in 1956'.[17] Hurst was president of the society in 1983, a position that Rahtz declined in 1995 due to other commitments.

1956 marked the beginning of a major rethink at Wharram, when excavation encountered a manorial structure below later peasant housing. Clearly, it was impossible to study peasant conditions archaeologically without either ignoring other evidence, destroying it unrecorded or encompassing it.[18] This problem was reinforced during the winter of 1959, when the church tower collapsed, revealing earlier evidence.[19] The different experiences of deserted medieval villages that Hurst and Rahtz had encountered thus began to come together, and might have much sooner if the latter had accepted the former's offer of the position of assistant director of Wharram in 1961, although he did visit the site about then.[20]

During the later 1950s, Rahtz was regularly excavating for the Ministry of Works and other bodies, with a growing reputation both as an excavator and as someone who published the results of his excavations. This led Rodney Hilton (described by Rahtz as 'belong to a different league of intellectual brilliance'[21]) to invite him to assist at Upton in 1961. This was run, very unusually, for history students of the University of Birmingham, but can be viewed as part of the complicated and often uneasy interaction between history and archaeology. After this, Rahtz was invited to apply for a job at Birmingham where at the interview he was much assisted by his spread of publications. University teaching, including effective field instruction, then became his prime focus.

The results of the first five years of excavation at Upton, from 1959 to 1964, were published in 1966 and included a site plan;[22] Wharram's first plan only appeared in 1971, despite the longer excavation span.[23] While this reported on a single peasant complex, as the central interest of contemporary deserted medieval villages, it also included other aspects of the village such as a boundary bank and pre-medieval, possibly Roman occupation. Both documentary and archaeological evidence were presented; the finds reports included reference to the important pottery sequences at both Chew Valley Lake and at Cheddar, needed to establish dating criteria at Upton. The animal bones were dealt with under the general heading of 'the economy' by that ex-farming Cambridge doyen and environmental determinist whom Rahtz much admired, Eric Higgs (and a colleague).[24] This publication was in a county journal, whereas the first deserted medieval villages publication from Hurst and Beresford was a weighty hardback.[25]

By the mid-1960s, the topic of deserted medieval villages was well developed with a conference in 1965 sponsored by Maurice Beresford's university, Leeds, at which Beresford lectured on deserted medieval villages in England, Rahtz on Upton, Hurst on Wharram Percy and Axel Steensberg, the progenitor of village open-area excavation, talking about his Danish excavation. Work on individual deserted medieval villages continued apace. The 1966 Upton season built on previous work, but also included the village's water supply and 'the beginnings of an intensive survey of Blockley parish'[26] under Hilton and Chris Dyer, who is still prominent in the successor body to the Deserted Medieval Villages Research Group, the Medieval Settlement Research Group. Professor Bob Smith, another member of the University of Birmingham, provided the surveying skills, learned during Second World War service.[27] Finds, and therefore the potential of frequentation or settlement, ranged from prehistoric to late Roman and beyond.[28] The

second Upton report in 1969 was authored by Rahtz alone: Hilton was disappointed with how long it took to acquire archaeological evidence in comparison with the time needed to read often long-published medieval documents. Upton continued until 1968, when the farmer who owned the land was enraged by a farm gate unwittingly left often, although a watching brief was done in 1973. The publication of the latter provided a useful overview, of relevance to both Upton and Wharram, concluding that 'much had been learnt about one peasant property, but little about the origins and developments of the site as a whole . . . What is made abundantly clear (and this is perhaps the most important result of the work) is that the surface earthworks of Upton are merely the surface, the top layer a complex site . . . [Upton] is clearly even richer in buried prehistoric, Roman and medieval settlement than had previously been supposed; as at Wharram Percy there is possibility of continuity of rural settlement at Upton.'[29]

Rahtz was aware as Beresford and Hurst of the subject as a whole, as his review of their 1971 book makes clear, when he concluded 'that the subject is no longer that of either deserted or shrunken medieval villages, but the medieval village'.[30]

From the late 1960s there were major changes in both British archaeology and on-site at Wharram Percy. The previous concentration on rescue sites, on recovering threatened data as and when it occurred, was gradually replaced by the dual concerns of how archaeological research should be conducted in the face of an escalating quantity of knowledge, much of it unpublished[31], and by a complementary interested in archaeological theory, including how to approach overall understanding with limited intervention.[32] During these years, both Hurst and Rahtz were involved with many other aspects of archaeology besides medieval settlement. Excavation at Wharram continued annually and by the early 1970s, Wharram was no longer simply the excavation of a peasant village; it had evolved into a landscape project, complete at last with a parish survey[33] with an in-time depth and with a concern for issues of continuity.[34]

Hurst had ceased to excavate at Wharram; with several excavations running at once, he became on-site synthesiser[35], which was reflected in the annual interim reports. Rahtz, in contrast, always led the actual excavation of his sites, maintaining tight control over everything he was responsible for writing up.[36] He preferred to publish site reports before embarking on synthesis, either of individual sites or wider material. Hurst, together with Beresford, reversed this procedure at the long-running Wharram project, publishing overviews of both deserted medieval villages[37] and of Wharram[38] long before particular supervisors published the individual sites, although this was to a minor extent bridged by the interim reports.

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It is against this background that the University of York's involvement with Wharram Percy, only one of its excavation projects, should be viewed. In 1978, on the very evening of the day that he learned that he had been offered the chair of archaeology (not of medieval archaeology) there, Rahtz talked with Hurst about the involvement of the new department at Wharram. For Rahtz it was important that his new department should have a regional focus. Hurst followed this up with a letter which continued that conversation.[39] 'This is an ideal time', he wrote, 'as I am just planning the next ten year programme and feel myself somewhat overstretched.' He had previously been disappointed, he continued, by lack of university response to his invitation to participate at Wharram and he now wanted to be

joined 'in a partnership much deeper than just student involvement.' 'For your students ... I think Wharram could be an ideal site for training since on the same site you have everything from shallow classic open area excavation to 20 ft of complex stratified deposits from Neolithic to the present day and from simple 18th century buildings to the most complex of interleaving of prehistoric features dug into hillwash, filled with more hillwash and then cut again.' 'The prime academic work of the next ten years will be to work out clear evidence we now have for continuity on at least two of the sites and hopefully what happens in the subroman period.'

The years 1978–86 at Wharram involved both Hurst and Rahtz; co-direction resulted in more confidence and the pooling of ideas. Interests by then ranged from the characterisation of the soils, the source of the Gipsy Race, the location and characterisation of nearby Roman villas, to the recent graveyard. The possibility of archaeological continuity was indeed explored west plateau areas. The North Manor, the University of York's area of excavation, was supported by university-based seminars and papers before students went to Wharram. Rahtz's paper, 'Excavation Strategy and Predictive Models'[40], for example, for example, was a theoretical paper on how continuity might be demonstrated archaeologically. Rahtz argued that such problem orientation was possible on a 'safe' site, where there were no time constraints. All was explicitly and clearly discussed, both in print as well as in continuous on-site dialogue, a very practical learning-by-doing environment for the students.

Something of the flavour of the Wharram interim reports can be gathered from the introduction to the 1983 report: the season had been 'again remarkable archaeologically, with major new discoveries. The Iron Age nucleus of the north manor was found to be more complex than previously thought and has provided the first major sealed group of pre-Roman pottery. This settlement, at an important T-junction of the lynchet, the the boundary and hollow-ways, seems to have been one of the major centres of occupation through the whole history of the site.'[41] And from the 1984 interim report which, in the context of the need for total excavation of the many hectares of the site, spoke of confirmation of 'the MVRG's policy of recommending only total excavation as anything smaller can be very misleading . . . this is one of the major lessons of [the] Wharram Project.'[42]

Both Hurst and Rahtz wrote about aspects of Wharram, Hurst from the viewpoint of the long-term synthesiser[43], Rahtz with the edge directed to how new models from recent archaeological theory might be incorporated into on-site work, as Hurst had requested.[44] There was, however, a publication in 1990 still focused on the deserted medieval village.[45] A Rahtz diagram about 'Wharram Data and Interpretation'[46] which attempted to bring together the diverse aspects of the many years of excavation at Wharram, was one of the few examples of alternative contemporary ways of thinking that was referred to by Gerrard.[47] Other similar material, like the *Wharram Data Sheets*[48] was received at Wharram 'like a lead balloon'[49]. Anthropological examination of the recent grave memorials, originally given at an Oxford conference, was not appreciated by some, but thought to be hilarious by many, vindicating Rahtz's maxim that archaeology is too important *not* to be joked about, with laughter making for better memory.[50] Hurst considered much of the new archaeology to be overblown. He himself, he said, had long used model-building when formulating interpretation, not least in his synthesis of the Wharram data.[51]

Site publication at Wharram had finally started in 1979.[52] Publication of all sites was completed in 2010, with Hurst having been the initial general editor (Beresford never participated in this); Rahtz joined him as joint general editor from York (where the series was henceforth published), until 1989 when Stuart Wrathmell joined them before taking over in 2005 as a young person to provide continuity.

Rahtz ceased to be involved with excavation at Wharram in 1986 when he retired, and the project as such ceased excavation in 1990 (celebrated in the *Ryedale Historian* in 1990-91), by when both Hurst and Beresford had been awarded fellowships in the British Academy. Rahtz continued to disseminate Wharram Percy[53] and the North Manor was published in 2004.[54] A synthetic volume came out in 2012, although it leaves many of the wider approaches to Wharram yet unexplored.[55]

John Hurst and Philip Rahtz were thus intimately involved with both the long-term excavation of and publication on Wharram Percy, a project which reflected the growth of medieval archaeology as well as long-term trends in British archaeology. Key sites such as Wharram have been important to the latter, but so have the many other sites that have contributed to the evaluation of the polarities of generalisation and uniqueness. Important stimulus to such overviews has come from the government-funded agency of which Hurst was perhaps the most positive and far-reaching influence, certainly for medieval archaeology, as well as from universities and from local societies. The overall approaches of the two have facilitated an understanding of long-term aspects of settlement forms, where both the detailed understanding of individual properties as well as the total settlement pattern over time are needed. These are major contributions to a more generalised, non-period specific understanding of 'ordinary' people (as distinct from the restricted, often short-term categories of the aristocracy, ritual and religion). This is a measure of the development of archaeology as a whole, not just medieval archaeology. Turning to methodology, the relationship between data gathering, interpretation and theory is, even now, not quite as exclusive as sometimes implied.[56] Hurst and Rahtz both believed that data could be defined (not everyone does!) and that data has a permanence that theory has not yet matched.[57] It may be argued that 'over the past 25 years theory has changed the questions we ask about the Middle Ages and how we study archaeology[58], but to do this effectively the quality of data, as recovered in the field and as published, must be of the highest quality, which was consistently the aim of Philip Rahtz and John Hurst over a 50-year period.

Notes

[1] cf P. Rahtz (2001), *Living Archaeology*. Stroud: Tempus, p. 15.
[2] Rahtz (2004), Retrospective. *Antiquity* 78, p. 427; John Hurst letters at Harome.
[3] Rahtz (2003), Obituary: John Hurst. *Antiquity* 77, p. 881.
[4] Rahtz (2004), Speech at Department of Archaeology, University of York, on the publication of P. Rahtz and L. Watts, *Wharram: A Study of Settlement on the Yorkshire Wolds, IX The North Manor and North-West Enclosure*. York University Archaeological Publications 11.
[5] Rahtz (2001), op. cit., p. 68.
[6] Both, for instance, have essays in V. Evison et al. (1974), *Medieval Pottery from Excavations* with Hurst becoming an international expert on the subject.
[7] C. Dyer (2011), Philip Rahtz and Medieval Rural Settlement. *Medieval Settlement Research* 26, pp. 77.
[8] cf C. Gerrard (2003), *Medieval Archaeology: Understanding Traditions and Contemporary Approaches*. London: Routledge.

[9] ibid., pp. 103, 116-17.
[10] cf R. Hilton (1966), *A Medieval Society: The West Midlands at the End of the Thirteenth Century*. London: Weidenfeld & Nicolson.
[11] Rahtz (2003), op. cit, p. 880.
[12] J. Hurst (1984), The Wharram Research Project: Results to 1983. *Medieval Archaeology* 28, p. 107.
[13] Rahtz and E. Greenfield (1953), Barrow Mead, English Combe, Bath and Moreton, Somerset. *Deserted Medieval Villages Research Group* 1, p. 18.
[14] Rahtz (1959), Holworth Medieval Village Excavation 1958. *Proceedings of the Dorset Natural History and Archaeological Society* 81, p. 138.
[15] Rahtz (1979), *The Saxon and Medieval Palaces at Cheddar Excavations 1960-62*. British Archaeological Reports Series 65.
[16] cf *Medieval Archaeology* (1960) 4, p. 189. Membership of the committees of both the Deserted Medieval Villages Research Group and *Medieval Archaeology* seem to have been dependent on employment by central bodies.
[17] *Medieval Archaeology* (1957) 3, pp. 149, 160, 162, 163, 166-68, 169.
[18] cf *Wharram Percy Interim Report 1956*.
[19] *Wharram Percy Interim Report 1960*.
[20] Letter of 21 December 1961, Harome.
[21] Rahtz (2001), op. cit., p. 15.
[22] Hilton and Rahtz (1966), Upton, Gloucestershire, 1959-1964. *Transactions of the Bristol and Gloucestershire Archaeological Society* 85, pp. 70-146.
[23] M. Beresford and J. Hurst (1971), *Deserted Medieval Villages*. Woking: Lutterworth Press. Fig. 25.
[24] For Higgs, see Rahtz, *Invitation to Archaeology*. Oxford: Basil Blackwell, pp. 52, 55.
[25] Beresford and Hurst (1971), op. cit.
[26] Rahtz (1966), Upton Interim Report 1966. Unpublished, unpaginated.
[27] Information provided to the author by Jean Birrell.
[28] Rahtz (1969), Upton, Gloucestershire, 1964-1968, Second Report. *Transactions of the Bristol and Gloucestershire Archaeological Society* 88.
[29] L. Watts and P. Rahtz (1984), Upton: Deserted Medieval Village, Blockley, Gloucestershire, 1973. *Transactions of the Bristol and Gloucestershire Archaeological Society* 102, pp. 150-51.
[30] Rahtz (1971). Review: M. Beresford and J. Hurst, *Deserted Medieval Villages* (1971). *Archaeological Journal* 128, 281-82.
[31] cf Rahtz (1983), New Approaches to Medieval Archaeology, Part I, in R. Hinton (Ed.), *25 Years of Medieval* Archaeology. Sheffield: The Society for Medieval Archaeology, p. 21.
[32] cf R. Hinton (Ed.) (1983), op. cit.; R. Gilchrist and A. Reynolds (2009), *50 Years of Medieval Archaeology 1959-2007*. Society for Medieval Archaeology Monograph 30.
[33] *Wharram Percy Interim Report 1977*.
[34] cf Hurst (1979), The Wharram Research Project, in N. Higham (Ed.), *The Changing Past*. Manchester: University of Manchester Press, pp. 71.
[35] Rahtz (2003), op. cit., p. 881.
[36] cf L. Grinsell, P. Rahtz and A. Warhurst (1962), *The Preparation of Archaeological Reports*. Bristol Archaeological Research Group.
[37] Beresford and Hurst (1971), op. cit.
[38] e.g. Beresford and Hurst (1979), Wharram Percy: A Case Study in Microtopography, in P. Sawyer (Ed.), *English Medieval Settlement*. London: Edward Arnold, pp. 52-85; Hurst (1979), op. cit.
[39] Hurst letters, Harome.
[40] Rahtz (1980a), Wharram Percy, The North Manor (Site 60), A Preliminary Model (Including Excavation Strategy and Predictive Models, Excavation and Recording, unpublished; cf Rahtz (1978), The Concept of Continuity in Settlement Studies. *Medieval Village Research Group Annual Report* 26, pp. 35-6.
[41] Wharram Percy Interim Report (1983).
[42] Wharram Percy Interim Report (1984).
[43] e.g. Hurst (1984), The Wharram Research Project: Resuts to 1983. *Medieval Archaeology* 28, pp. 77-111.
[44] Rahtz (1981), The New Medieval Archaeology. Inaugural lecture (1980), University of York; Rahtz (2003), op. cit., p. 881.
[45] Beresford and Hurst (1990), *Wharram Percy: Deserted Medieval Village*. London: Batsford/English Heritage.
[46] e.g. Rahtz (1981), op. cit., Fig. 9.
[47] Gerrard (2003), op. cit., Fig. 5.11.
[48] Rahtz (1980), *Wharram Data Sheets*, revised 1981. Medieval Village Research Group.

[49] Rahtz (2001), op. cit., p. 142.
[50] Rahtz [as Rilip Phahtz] (1985c), Wharram Percy Memorial Stones: An Anthropological View from Mars, in D. Hooke (Ed.), *Medieval Villages*. Oxford Committee for Archaeology Monograph 5, pp. 215-223; cf Rahtz (1985), op. cit. p. 106.
[51] Hurst (1983), Medieval Archaeology Twenty-Five Years Years On: Summing Up, in Hinton (Ed.), op. cit., p. 133.
[52] D. Andrews and G. Milne (1979), *Wharram – A Study of Settlement on the Yorkshire Wolds I, Domestic Settlement : Areas 10 and 6*.
[53] e.g. Rahtz (1988), The End of Roman Wharram Percy, in R. Jones, J. Bloemers, S. Dyson and M. Biddle (Eds), *First Millennium Papers: Western Europe in the First Millennium AD*. BAR International Series 401, pp. 295-301; Rahtz (2001), op. cit.
[54] Rahtz and L. Watts (2004), *Wharram: A Study of Settlement on the Yorkshire Wolds. IX The North Manor and North-West Enclosure*. York University Archaeological Publications 11.
[55] cf Rahtz (2001), op. cit., p. 142; Rahtz (2004), op. cit.
[56] Compare A. McClain (2012), Theory, Disciplinary Perspectives and the Archaeology of Later Medieval England, *Medieval Archaeology* 56, 131-170 with Rahtz (1983), New Approaches to Medieval Archaeology in D. Hinton (Ed.), op. cit., pp. 21.
[57] cf A. Reynolds (2009), Meaningful Landscapes: An Early Medieval Perspective, in Gilchrist and Reynolds (Eds), op. cit., p. 411.
[58] Gilchrist and Reynolds (2009), op. cit., p. 4.

A Private Roman Church? The Villa at Beadlam, North Yorkshire

by Lorna Watts

The Roman villa at Beadlam is at the foot of the North Yorkshire Moors, on the road between present-day Helmsley and Kirkbymoorside. Having been identified by local archaeologist Tony Pacitto[1] after ploughing and scheduled as an Ancient Monument[2], it was partially excavated, with presentation as a monument in mind, in the late 1960s–early 1970s, the results of which were published by David Neal in 1996.[3] Its layout was not that of a regular winged villa, but one that was an amalgam of previous elements so that the subsidiary parts were not at right angles to the main building. The layout also included a circular building and a curvilinear enclosure.[4] Finds included 'major groups of later Roman pottery and glass', a 'substantial coin assemblage', 'two hoards of iron objects and an inscribed bowl'.[5]

In his recently published *Roman Yorkshire*, Patrick Ottaway has suggested that the villa may have included, in a late phase, a private church and possibly also a baptistery. The easterly range of buildings, in Ottaway's analysis, included 'an unusual apsed building (Building 5)' that he considers 'might have been used as a private church' and that utilised measurements 'incorporating whole number square roots'. He thinks these 'suggest a building carefully designed with the harmony appropriate to a sacred milieu'. On the opposite side of the complex, 'sixty-six metres due west' in Building 2, 'the latest phase of the plunge pool has the octagonal form common in late Roman baptisteries.' The excavator, he says, 'concedes that Building 5 could have been a shrine[6], but the pool in its liturgically correct place to the west of it raises the possibility, at least, of this being a Christian church'.[7]

Ottaway does not refer to Charles Thomas' suggestion that a fish-shaped nail cleaner, from Room 4 of Building 1, part of the north range,[8] may have been a Christian symbol. The fish, Thomas noted, was 'linked to an acrostic' and was 'related to the idea of a Christian spiritual birth in baptismal waters'.[9]

What are we to make of Ottaway's suggestion, given that Roman ecclesiastical structures are both notoriously difficult to identify and are also scarce in the north of England? To attempt to answer this fully, the plan of the buildings and associated artefacts at Beadlam would need to be considered in relation to the other contemporary putative religious structures with their associated assemblies, both Christian and pagan.

Meanwhile, some more immediate comments can be made. Among the finds, previous archaeologists have identified only the fish-shaped object as having possible Christian connotations. Neither Pacitto[10] nor Neal suspected more. The latter in the unattributed passage above[11] concludes that 'the provision of an apse gives the building a mark of importance' (it is unique among those so far excavated at Beadlam) and that 'it looks as though it may have been a shrine but there were no artefacts from the building that would support this notion and the fact that the building originally had a simple flagged floor and was without painted wall plaster rules this out.' Instead, he preferred an administrative function. [12] Philip Rahtz recognised the complexity of the site, the remarkable character of some of the finds, especially the glass, the wealth of the villa's inhabitants and the indications that it may have been used post-AD 400. However, of 'religious affiliation', he wrote 'there are few indicators': a 'leaf-shaped bone object' from Building 2[13] 'can be

matched in pagan temple finds elsewhere, and a brooch [mistaken for the nail-cleaner] depicting a fish could hint at a Christian presence'.[14]

Ottaway cites no parallels for the possibly Christian building, nor for the wide spacing between this building and the putative baptistery. During the early years when Christianity had an apparently minor presence in Britain, however, it may be misleading to expect any standardisation of architectural layout. A non-inset eastern apsidal end is less familiar, but so are *any* plans of proposed Christian buildings.[15] Thomas does provide an apsidal example in the *reconstructed* plan of a late fourth-century church at Icklingham, Suffolk 'employing the [measuring device of the] late Roman *pes* (*monetalis*) as a unit'.[16] This needs further research.

Ottaway's identification of the use of careful numerical values in the context of his suggested private church may thus be important. They are, however, also used in a different form in a third-century burial from Roman York, for example.[17] Such numerical indices may perhaps more generally be regarded as indicative of sophisticated minds, rather than as having any specific association with Christianity.

What, then, of the artefactual materials and their relationship to structures at Beadlam? They give more obvious pause for thought. The fish is a common Christian symbol, but in isolation it is difficult to assess whether its presence on a site implies this association, or whether it had, for instance, simply been acquired as an attractive object. Context and association could add clarity of meaning, but the location where the nail-cleaner was found, in the North Range close to the entrance of fourth-century Building 4[18], was unrelated to either Building 5 or 2 (see above). Did such an item nevertheless have any part in early Christian liturgy, as did items for dressing the hair? Otherwise, its milieu may be no different from the general refinement referred to above. Of the other finds, one that may be worth further investigation is a jet ring which has an elongated cross with blanks on either side.[19] Has this been examined sufficiently to ensure there is nothing in the blank areas?

Supporting the private church hypothesis is an east–west building that certainly has a good prospect of seeing the rising sun; a plunge pool some distance away that could have been used as a baptistery; and an object with possible Christian symbolism: i.e. buildings and objects found in all areas of the villa complex. On the other hand, the villa appears to have been a rich establishment the wealth of which, as indicated by window and vessel glass of the late fourth century, was outstanding.[20] Jenny Price has seen this as indicative of high status rather than of an entrepôt or even part of a ritual landscape.[21]Another indication of wealth, whether at a much earlier period or as a later addition to the site, is the single early Dressel type 1 sherd, found associated with a post-AD 330 Huntcliff jar rim. The rarity of this anomalous find in the rural north has been mitigated by the identification of another Dressel type (2-4) at West Heslerton, further south in the Vale of Pickering.[22] The coin range at Beadlam extends to the very late fourth century[23], but so does that at nearby Hovingham, for instance.[24] Such ranges are not uncommon in North Yorkshire.[25] Other finds at Beadlam appear to extend into the very late Roman and perhaps post-Roman period,[26] as does a burial in a former building.[27] This activity and wealth extended very late in the Roman period, if not beyond; religious attribute, in contrast, is much more difficult to identify. On Thomas' suggested scores of Christian probability, Beadlam's rate is still equivocal.[28]

There is one further consideration. Beadlam is close to the Anglo-Saxon church of St Gregory's in Kirkdale, established by the eighth century if not earlier – just a dale to the east, but now in a different parish. Is there any link between the two, in terms of a Roman estate that might have been partly inherited by the early Anglo-Saxons? To suggest that any religious affiliation may have been passed on, however, requires much more work to verify or refute.

Notes

[1] I. Stead (1971), Beadlam Roman Villa: An Interim Report. *Yorkshire Archaeological Journal* 43, p. 179.
[2] T. Pacitto (1966), Beadlam, NR. *Transactions of the Scarborough and District Archaeological Society*, 2.9, p. 43.
[3] D.S. Neal (1996), *Excavation on the Roman Villa at Beadlam, Yorkshire*. Yorkshire Archaeological Report 2.
[4] ibid., Figure 14.
[5] ibid., p. vii.
[6] Neal, op. cit., p. 43, not quoted by Ottaway.
[7] P. Ottaway (2013), *Roman Yorkshire: People, Culture and Landscape*. Pickering: Blackthorn Press, p. 315.
[8] Neal, op. cit., p. 18.
[9] C. Thomas (1981), *Christianity in Roman Britain to AD 500*. London: Batsford, p. 92 and Figure 8. Charles Thomas has mainly worked in a different period-setting than Patrick Ottaway, post-Roman rather than Roman. His book was a major synthesis of early Christianity in Britain, using many types of information.
[10] Personal comment.
[11] Neal, op. cit., p. 43.
[12] Neal, op. cit., p. 43.
[13] From Building 2, Room 9 in the West Range. Neal, op. cit., p. 50 and Figure 4.
[14] P. Rahtz (1998-99), Book Review, *The Ryedale Historian*, 19, pp. 25.
[15] cf. Thomas, *Christianity in Roman Britain to AD 500*.
[16] ibid., Figure 33.
[17] Ottaway, op. cit., pp. 236-38.
[18] Neal, op. cit., p. 18 and Figure 31.
[19] ibid., Figure 33.35.
[20] J. Price and S. Cottam (1995), Late Roman Glass Bowls from Beadlam Villa, North Yorkshire, in B. Vyner (Ed.), *Moorland Monuments: Studies in the Archaeology of North-East Yorkshire in Honour of Raymond Hayes and Don Spratt*. Council for British Archaeology Research Report 101, pp. 235-242.
[21] Personal comment.
[22] V. Rigby (1988), An Amphora Sherd from the Beadlam Roman Villa, North Yorkshire, in J. Price and P. Wilson (Eds), *Recent Research in Roman Yorkshire: Studies in Honour of Mary Kitson Clark*. British Archaeological Reports Series 193, pp. 313-321.
[23] Neal, op. cit., pp. 63-65.
[24] T. Pacitto and L. Watts (2007), Excavations at the Church of All Saints, Hovingham, Yorkshire. *Church Archaeology* 11, pp. 51.
[25] cf. Ottaway, op. cit., p. 292.
[26] cf. Rahtz, op. cit.
[27] Room 6 of Building 1 of the North Range; Neal, op. cit., p. 114.
[28] Thomas, op. cit.

St Gregory's Minster, Kirkdale: Summary of Watching Brief, November 2014

by Lorna Watts

Late in 2014, maintenance work was carried out at St Gregory's Minster in Kirkdale by the church architect, the most important of which was concerned with alleviating damp within the church.

The method chosen to achieve this was to dig narrow channels around the chancel and to fill these with gravel. The channels revealed foundations not seen since 1880, including on the south side part of a substantial earlier, apsidal chancel. It is likely that a contemporary north–south division across the nave (a 'cord') was also seen on the east side of the chancel (see Figures 1–3). Both these features pre-date the later rectangular structure and extend the length of the associated building eastwards by several metres. The size of the associated building would seem most in in keeping with the present nave–chancel division, itself likely to be of more than one period. It is not easy to correlate this structure with the apse partially seen in 2000[1]; and at present, they are assumed to belong to different building phases.

Within the church, the lower part of the Anglo-Saxon west wall could be seen because the adjacent heavy pew was temporarily moved. On the north side of the west doorway, the basal course consisted of thin slabs, dissimilar to any surrounding masonry. Whether these slabs were part of the structure associated with the west doorway could not be ascertained. They may be part of a previous structure.

Four courses above this basal course are two large blocks, apparently reddened by burning. They are not, however, associated as previously thought with the wall on the north side of the nave–chancel division; rather, they are anomalous in the coursing of this wall, with masonry of a different scale all round them. They are instead reused and are similar in burnt appearance to the *in situ* stonework seen in the lower part of the exterior side of the south nave wall in 2000.[2]

The removal of the pews also showed the great variety of paving at Kirkdale, especially in the nave and north aisle. The smaller paving, especially at the west end, may pre-date the 1909 restoration. The removal of the pews also enabled the differences in orientation between the chancel+north aisle and the nave to be viewed. The differences are especially apparent where the two orientations had to be reconciled in the area to the immediate west of the present nave–chancel division. This difference in orientations was also visible among external burials.[3]

The watching brief thus recorded important new data about the church, especially a new apsidal phase of the chancel. This, however, was seen on a totally inadequate scale – its relationship to exterior levels, for example, could not be investigated.

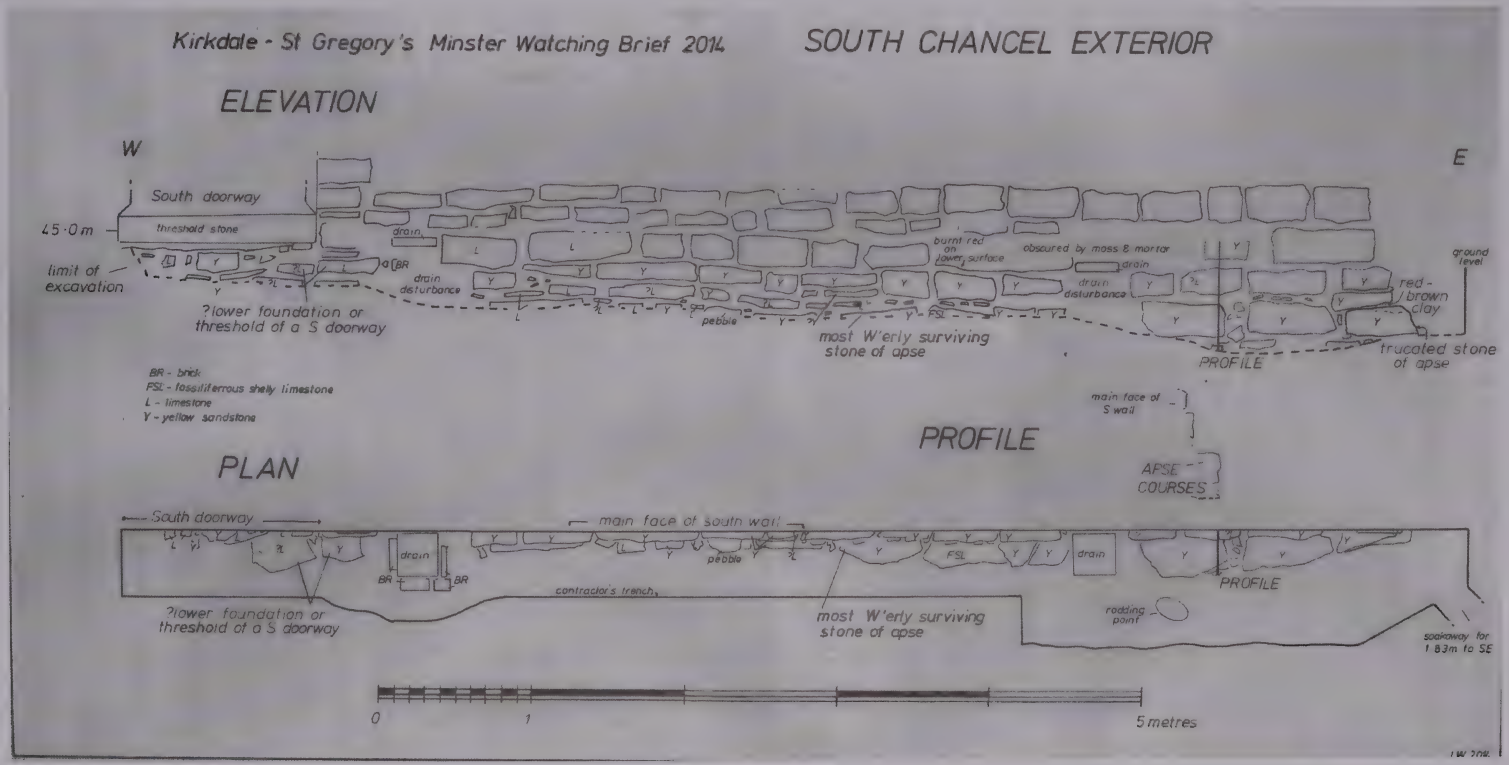
Damage to the archaeological fabric of the church was caused during the watching brief by the removal, despite archaeological objection, from the exterior west wall of what the architect regarded as the intrusive early twentieth-century infilling surrounding the grave slab (Lang KD 7); it was not replaced by any other indicator. This monument is one of two early sculptural monuments of the late-eighth and early-ninth century[4], the other being

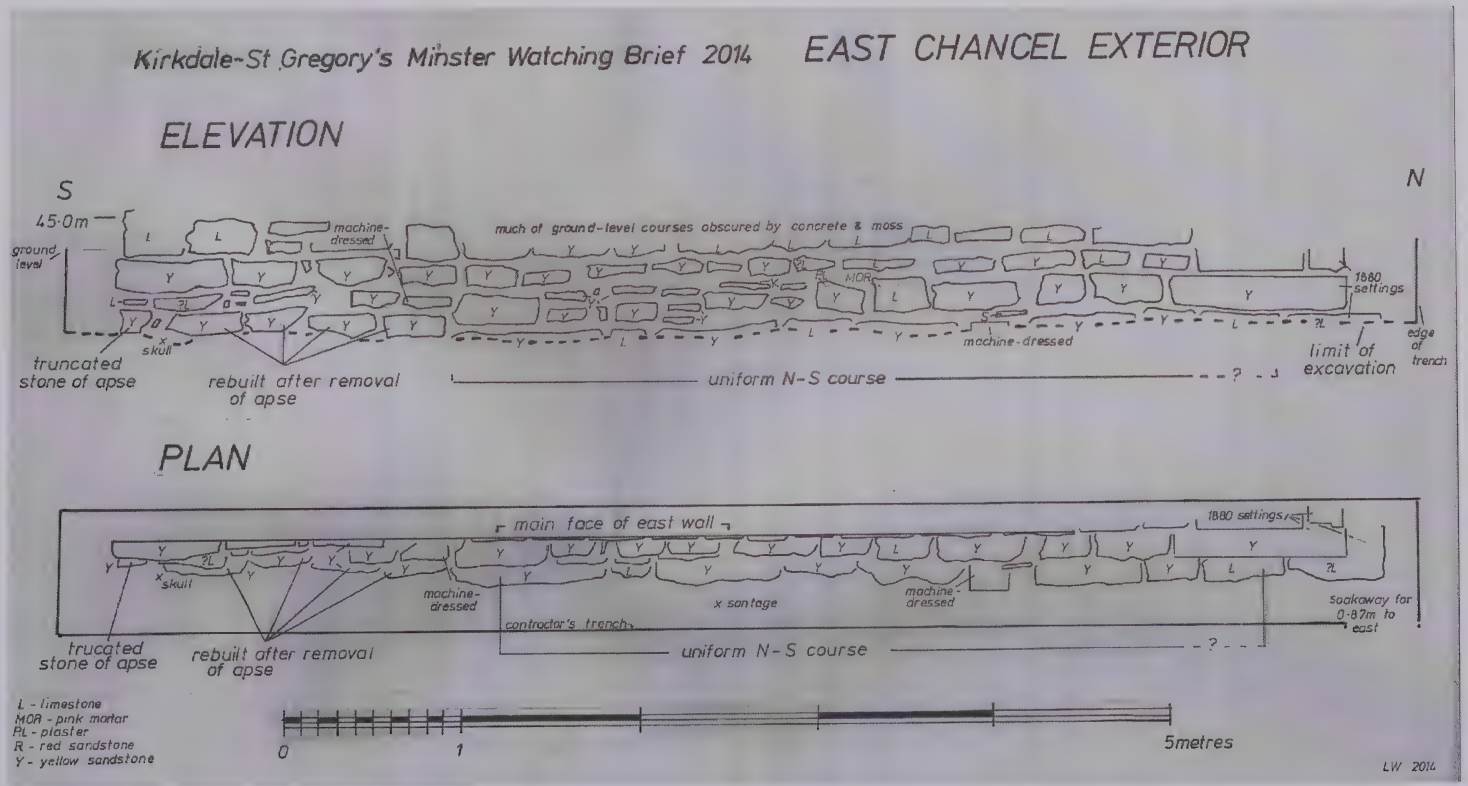
Lang KD 8, both now located below the arcade inside the church. The position of Lang KD 7 in the west façade is a significant element of probably the eleventh-century history of the church. The loss of a clear indication of its place in the fabric is thus important. It is also of significance to the recent history of the church, part of the archaeological record, associated with one of the most prominent figures in the survival of the fabric of St Gregory's, its indefatigable hero, the Rev. F. Powell. Under his supervision, the 1909 restoration left various 'tell-tales' in place, to indicate suggestive features within and without the church, including highlighting the erstwhile positions of Lang KD 7 and 8. It was his recognition of the need to remove Lang KD7 and Lang KD8 inside the church that ensured the survival of their surface detail.

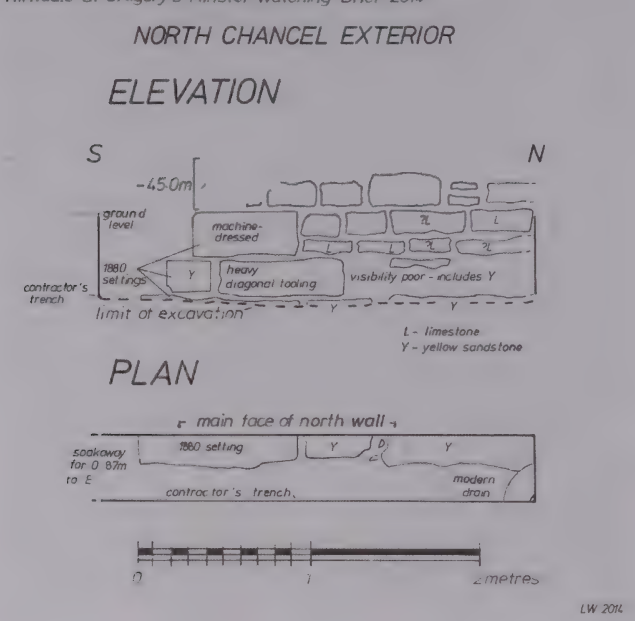
The watching brief was also significant in drawing attention to the way in which the faculty to carry out work on a church is done, and also to the way in which architect and archaeologist work together. Faculties are granted by a diocesan committee; it is important that this committee should have sufficient information to assess the archaeological risk of a proposed project. At Kirkdale, there was no record of whether the 1880s rebuild was total. There is now published opinion, recently by the renowned historian Richard Fletcher[5] as well as the results of excavations, about the importance of this church and its surroundings – enough, in the opinion of the author,that work of this nature should not have been granted on the scale that it was. Any intervention around the chancel should have been the subject of major excavations. In any case, at Kirkdale the problems of dampness could have been dealt with in an alternative way, which the men doing the work immediately realised, but which was not acted upon: the simple removal of the tarmac and concrete surrounding the chancel, clearly hampering the dispersal of water, would have given the building the opportunity to dry out naturally, at much less cost. At the very least, this should have been the first approach and if it had not been effective, then the problem could have been reviewed.

It is also important that the architect should work in collaboration with the archaeologist appointed to a project, as they are employed by the church as equal collaborators, so that the best interests of the church can be achieved. When this does not happen, churches such as Kirkdale are in danger of losing forever the opportunity to learn adequately about their past.

Below, in order, are Figures 1, 2 and 3: the chancel south exterior wall, elevation, plan and profile; the chancel east exterior wall, elevation and plan; and the chancel north exterior wall, elevation and plan.


Kirkdale - St Gregory's Minster Watching Brief 2014
SOUTH CHANCEL EXTERIOR
ELEVATION
W
E
South doorway
45·0m
threshold stone
limit of excavation
drain
drain disturbance
?lower foundation or threshold of a S doorway
pebble
most W'erly surviving stone of apse
burnt red on lower surface
obscured by moss & mortar
drain
drain disturbance
ground level
red - brown clay
truncated stone of apse
PROFILE
BR - brick
FSL - fossiliferrous shelly limestone
L - limestone
Y - yellow sandstone
PLAN
PROFILE
main face of S wall
APSE COURSES
South doorway
main face of south wall
drain
BR
pebble
FSL
drain
contractor's trench
?lower foundation or threshold of a S doorway
most W'erly surviving stone of apse
redding point
soakaway for 1·83m to SE
PROFILE
0
1
5 metres


Kirkdale-St Gregory's Minster Watching Brief 2014
EAST CHANCEL EXTERIOR
ELEVATION
S
N
45·0m
ground level
machine-dressed
much of ground-level courses obscured by concrete & moss
MOR
1880 settings
skull
truncated stone of apse
rebuilt after removal of apse
uniform N-S course
machine-dressed
limit of excavation
edge of trench
PLAN
main face of east wall
1880 settings
skull
machine-dressed
x sontage
machine-dressed
contractor's trench
soakaway for 0·87m to east
truncated stone of apse
rebuilt after removal of apse
uniform N-S course
L - limestone
MOR - pink mortar
PL - plaster
R - red sandstone
Y - yellow sandstone
0
1
5metres
LW 2014



Notes

[1] cf P.A. Rahtz and L. Watts (2002-04), Excavations in Ryedale 2000. *The Ryedale Historian* 21, pp. 19-26.
[2] Rahtz and Watts (1998-99), *Kirkdale Archaeology 1996-97* (Supplement to *The Ryedale Historian* 19).
[3] Ibid., Fig. 23.
[4] J. Lang (1991), *York and Eastern Yorkshire: Corpus of Anglo-Saxon Stone Sculpture III*. Oxford: British Academy/Oxford University Press, pp. 161-63.
[5] R. Fletcher (Ed.) (1990; 2003), *St Gregory's Minster, Kirkdale*. Joint Church Council (1990); Trustees of the Friends of St Gregory's (2003).

The Parisi: Britons and Romans in Eastern Yorkshire

by Peter Halkon
Publisher: The History Press, 2013
ISBN: 978-0-7524-4841-1
Price: £19.99 (Paperback)

If you are looking for a highly informative, clear and concise history of the Parisi, this is the book. Peter Halkon writes in a way that enthrals any reader: from those interested in a significant academic achievement to anyone who has an interest in past cultures.

Halkon gives an in-depth insight into an Iron Age society, drawing together antiquarian discoveries and recent archaeological excavations to provide the evidence for an advanced culture with links to continental Europe and the La Tene Culture. One particular extract from the diary of John Wesley written in 1776, evokes all the excitement and anticipation of archaeologists excavating in the modern period. 'In my way hence to Malton, Mr C- (a man of some sense and veracity) gave me the following account: his grandfather Mr H-, he said about twenty years age, ploughing up a field, two or three miles from Pocklington turned up a large stone, under which he perceived there was a hollow. Digging on he found at a small distance, a large magnificent house. He cleared away the earth; and going on to it found many spacious rooms. The floors of the lowers storey were of mosaic work and exquisitely wrought.'

The book examines the identity of the Parisi, a tribe which occupied East Yorkshire in the Iron Age. The author considers the suitability of the term 'tribe' to describe such complex and disparate populations of Iron Age and Roman Britain. The significance of the landscape and the sense of place are well presented with detailed descriptions and illustrations placing the Parisi within the landscape of East Yorkshire. The first six chapters deal with the Iron Age period and each chapter has a summary, which enables the reader to grasp the key themes in that particular chapter.

The term 'Parisi' is synonymous with the burial rite of placing the body within a central grave surrounded by a square enclosure, hence the term square barrow. Excavated square barrows have contained magnificent grave goods including chariots. The culture is often perceived as warrior-based, which obviously captures the imagination but can obscure the detail. All too often authors of the period concentrate on the spectacular chariots, swords and spears of the burial rite, overwhelming the more ordinary aspects of the culture. The Iron Age tradition is so successfully described by Halkon in this book that the everyday aspects of life from ceramic production and agricultural activities are given equal significance.

The evidence leads the reader to be able to visualize that the Parisi predominantly lived in roundhouses either in villages comprising strings of enclosures along trackways or in single dispersed enclosures across the Wolds. Soils, drainage and topography have had an important influence on site location and activity and there is evidence to support both pastoral and arable agricultural activity. The elaborate brooches, bangles and swords, which are depicted within the text, demonstrate the skill of the metalworking.

After providing a most comprehensive picture of the Parisi, Halkon progresses to the arrival of the Romans and how they integrated, influenced and affected change on the Parisi.

The presence of so many Flavian forts and marching camps in the area is suggestive that relations between the indigenous population and Rome may not have been as peaceful as previously thought. The majority of forts were situated in strategically important locations and possibly on tribal territory boundaries. The author goes on to assess the impact of Rome and the development of the larger settlements of East Yorkshire including Brough on Humber, Malton and Norton, Hayton, Shiptonthorpe and Stamford Bridge.
The Roman period in the countryside away from towns had elements of continuity from the Iron Age but the clearest indicator for Romanisation was the emergence of the villa. The villa sites are described vividly and the descriptions of central heating systems, tiled roofs and bath suites are supported with recent archaeological excavations.

Chapter 9 gives a comprehensive overview of the industrial activity undertaken in the region, including ceramic production, metalworking, glass and jet working. These regional products were traded over the northern frontier and illustrate how the economic society had changed.

The everyday lives of the people and how assimilated they became with the Romans is discussed in great detail – from diet to burial rites and the emergence of a literate society.

Over the last few months I have found the book most helpful in a professional capacity while excavating a Parisi cemetery at Pocklington. I hope this review entices you to pick up a copy.

Paula Ware

Westerdale: The Origins and Development of a Medieval Settlement

by Carol Wilson
Publisher: North Yorkshire Moors Association, 2013
ISBN: 978-0956577924
Price: Paperback, £12.00

Westerdale is the dale where, high up on the North York Moors, the river Esk starts as a number of rivulets known as Esklets. It is also the name of a village in the dale with a single street of 30 houses and about the same number of outlying farms.

Carol Wilson tells the story of the development of Westerdale from when records began to mention it in the late twelfth century until the time of the Reformation, although evidence gathered from the Mesolithic and Neolithic times in the form of quern stones, flints and analysis of organic pollen point to settlement from much earlier times. The first record Wilson cites is the charter of Bernard de Balliol *c.*1180 which granted 20 bovates of land in Esklets, Hogthwaite and Wulverdale to the Cistercians at Rievaulx Abbey as a grange (now today known as Esklets farm). People were already living in the area. Evidence from *c.*1190 shows that Baysdale Abbey also owned land and a grange in the dale. The Knights Templar arrived c.1200 to establish their preceptory; this site later became the present-day Westerdale Hall. The planned village continued to develop along with its twelfth-century church which was built close to the pre-Christian Bagdale Well.

The author's analysis of historical documents, research on the local landscape, as well as use of local tradition, locally written books and information from the more recent past, are excellent. Her book includes many clear maps, plans and photographs to back up and explain this evidence.

Anyone undertaking local area research would find this book inspiring and most helpful as a model of research and analysis. Her study of the development of farmsteads, field systems and trackways which survive in the dale today are fascinating and informative. Her use of maps, plans and archaeological remains in the landscape and, in particular, the bailiff's account of the manor in 1539 and the farm list of 1771 to tease out the development of Westerdale and its farmsteads shows the way forward to any aspiring amateur local historian. Wilson's method of using detailed observations of the present church and old drawings of the previous church along with documentary evidence is thorough and convincing, an excellent method to follow where evidence is slim and often contradictory. Mention must also be made of the author's suggested locations of two field churches, the Knights Templar's own capella plus their place of worship at Braithwaite in the parish of Westerdale.

Finally, the book contains extensive reference notes at the end of each chapter and five appendices listing the evidence that Wilson has gathered, plus a detailed bibliography of both primary and secondary sources and a very useful glossary, all of which will further guide potential historians searching to discover more about their own localities, especially very small rural communities.

Pat Donnor

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Cover illustration: Excavating at Yearsley Watermill
(photo credit: Elizabeth Sanderson)